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ABSTRACT

This report (Volume I), with accompanying appendices (Volume II), was developed as part of the Northwest Center for Sustainable Resources' (NCSR) efforts to upgrade the curriculum for natural resource technicians in associate degree programs. The primary purpose of revising the program was to increase technicians' knowledge and skills in mathematics, scientific procedures, analytical thinking, communications, and understanding concepts of ecosystem management. A major component of the program evaluation focused on determining the revised curriculum's success with students in the program and upon graduation. This report presents the data gathered through surveys of students, graduate students, and employers in relation to their natural resource education and the areas of NCSR program concentration. Volume I contains survey responses (n=149) from: (1) students, who reported that they find the programs within their academic ability, admitted they tend to take less math and science, and stressed the importance of ecosystem science in the programs; (2) graduates, who described limited mathematical and science preparation; and (3) employers, who stressed the importance of skills and knowledge. Volume II contains appendices A through G, which provide response rates, data and surveys from students, graduates and employers. (AS)

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ED 427 801

# NORTHWEST CENTER FOR SUSTAINABLE RESOURCES

# STUDENT SUCCESS DATA AND REPORT FEBRUARY 1999

## VOLUME I - REPORT

### PREPARED BY THE

### WESTERN CENTER FOR COMMUNITY COLLEGE DEVELOPMENT

### OREGON STATE UNIVERSITY

JC 990 098

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## INTRODUCTION

This report and data has been developed as part of the external evaluation of the Northwest Center for Sustainable Resources' (NCSR) efforts to upgrade the curriculum for educating natural resource technicians in associate degree programs. A major component of the evaluation is focused on determining the degree of success the revised curriculum is having on the success of students in there program and upon graduation. The primary focus of the program improvements has been to increase the technician's knowledge and skills in mathematics, scientific procedures, analytical thinking and analysis, communications and understanding concepts of ecosystem management. This report presents the data gathered through surveys of students, graduates and employers in relation to their natural resource education and the areas of NCSR program concentration.

Details of the NCSR's comprehensive effort including evaluation of other aspects of the program's objectives is included in the NCSR March 1999 Evaluation Report file by the Western Center for Community College Development.

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## EXECUTIVE SUMMARY

The survey response rate varied by college. As a result the reliability of the data is questionable from a statistical viewpoint, however, the trends depicted by the aggregate data does provide a valuable in site into the effectiveness of the revised Natural Resource (NR) programs.

Students report that they find their programs within their academic ability. However, although reporting mathematics (algebra particularly) as important and stressed by professors, they tend to take less rigorous mathematics courses. This was also true in science with only half the students reporting taking a formal science course. Ecosystem science was stressed as important in the programs and taught in either discreet courses or as part of technical courses.

Graduates reported limited mathematical and science preparation, but said it was important on the job. Understanding the ecosystem was also rated as important and graduates felt they understood the concepts. The most important skill on the job was effective communications. Availability of jobs was limited but students had been advised of this factor. Approximately 66% of the graduates planned or were pursuing advanced education.

Employers tended to report the importance of skills and knowledge similarly to that of students. The respondents clearly felt employees from the program met or exceeded their expectation in the various knowledge and skills of the job.

## SURVEY ANALYSIS

**Response rate:**

The survey was administered to students, graduates and employers of natural resource associate degree technician programs at five partner colleges of the NCSR. These colleges are:

| COLLEGE | MAJOR PROGRAM |
|---|---|
| Central Oregon Community College, Bend, OR | Forestry<br>Geographical Info Sys |
| Chemeketa Community College, Salem, OR | Forestry |
| Feather River College, Quincy, CA | Wildlife |
| Grays Harbor College | Fisheries |
| Shasta College | Agriculture |

In addition to the major programs two colleges expanded their offerings in related existing or new disciplines. Students in these disciplines were included in the survey population and are reflected in the specific data for each college.

The survey response rate varied by college with Central Oregon Community College having excellent rate and Grays Harbor and Feather River College having less than desired rates. Shasta College failed to administer the survey to graduates and employers. As a result the reliability of the data is questionable from a statistical viewpoint, however, the trends depicted by the aggregate data does provide a valuable in site into the effectiveness of the revised Natural Resource (NR) programs. Response rates by college and survey type are reflected Attachment A.

**Student survey:**

A total of 149 student surveys were returned. The great majority of students were in their programs for less than two years (77%).

Below are some observations concerning student reported experiences in their programs.

Mathematics:

Most frequently taken mathematics was non-college level algebra, with 30% or less taking any form of higher level mathematics.

Eighty four percent of the students reported they used mathematics "often or occasionally" in their program. The same percentage reported learning mathematics was important.

Reported important mathematics were:

Basic arithmetic (96%)
Geometry (55%)
Algebra (81%)
Statistics (50%)

Mathematics appears to be stressed at least to a moderate degree in programs. Thirty nine percent of the students reported that mathematics was stressed as "important" by most professors, and 48% said some professors stressed it as important.

Science:

Approximately half of the students reported taking one or more science courses. Biology was the most frequently taken course (52%) with chemistry next taken by 44% of the students taking science. Most all science was lab based (97%). All student used science techniques in other courses at least occasionally, and 88% of the students reported science was stressed important by their professors.

Ecosystem based science:

A bit more than half of the students had taken at least one ecosystem science course (56%), while 73% said ecosystem principles were taught in other courses. Most (88%) students reported professors stressed the importance of ecosystems to some extent. Eighty six percent of the students reported they

understood ecosystems. However, a short sample test of ecosystem questions resulted in about half of the students getting the answers right.

Geographical Information Systems (GIS):

Avery limited number of students had taken a GIS course at the time of the survey. Ninety seven percent did, however report professors stressed GIS as important to some degree.

Job based education: Forty percent had participated in job based education, while 97% reported it was important.

Those having participated in job based education reported:

Work involved technical skills - 90%
They used mathematics at least sometimes - 83%
They used science less frequently (at least sometimes) - 52%
Communications skills were important to some degree - 92%

Rating of the program:

Most students rated their program as "challenging but with in abilities" (82%), while only 12% reported it was "very difficult and required special effort".

Most students rated their education to date as teaching essential knowledge (65%), while 27% felt it was mostly important but had some "unimportant parts".

Sixty nine percent stated they had a designated advisor and meet with the advisor during the term of study at least once (88%). Among other topics, advising covered the job market (67%) and did explain the required course sequence (61%). However, only 355 reported following the program course sequence.

Student readiness for the program:

The highest level of high school mathematics for most students was intermediate algebra (42%) or higher (18%). Elementary algebra or below was the highest level for 40% of the students.

Most had taken general science in high school (88%), with 64% having taken biology and 37% chemistry. Slightly less than half had a courses in environmental science (43%).

Sixty percent were high school graduates with 21% having less than two years of college prior to enrolling. The remaining 19% had two or more years of college.

Seventy one percent took and admission test prior to enrolling. The numbers taking remediation or bridging courses were:

Mathematics - 45%
Communications - 37%
Reading - 16%

The students future plans were almost evenly split with 51% planning to seek employment and 47% planning to continue their education. Conversely most think that obtaining a bachelors degree is at least "somewhat likely" (88%).

Fifty eight of the students are employed at least part-time. (48% part-time).

Forty eight are 22 years of age or younger. Twenty seven percent are 36 years of age or older.

Gender was fairly evenly split, with 59% male and 41% female.

Other areas of analysis:

Several sorts of the data were completed for analysis. In addition to the overall data depiction, these included: (1) the combination of The Feather River and Chemeketa responses (colleges in year two of the grant development); (2) Central Oregon, Grays Harbor, and Shasta (colleges in year three of the grant development); (3) distribution based on student program matriculation point; and (4) matriculation point sorts for the combined colleges referenced above.

Although, there were degrees of variance the overall pattern reported above was not significantly different. As a result a detail analysis of these data for each sort was not undertaken. The actual distribution of these sorts are included as external attachments to the report. (See page 3 for the contact for obtaining these and other attachments.)

**Graduate Survey:**

Distribution of respondents:

The majority of the 39 responding graduates were from Central Oregon (67%). As such, the responses are biased toward the programs at this college. Further complicating the analysis is the fact that of the 26 responding graduates from Central Oregon, 13 were from the GIS program. Although a NR emphasis program the curriculum for GIS has less science requirements and is more computer driven. I reviewing the analysis presented below these biases and the possible distortion should be borne in mind.

Period of enrollment and program content:

Most all graduate completed their program in less than three years (79%). And graduated from programs at least partially modified by grant objectives.

The graduates program mathematics preparation consisted of:

- Technical math - 69%
- Trigonometry - 59%
- Geometry - 64%
- Non-college algebra - 67%
- College algebra - 36%
- Other college level math - 15%

The graduates program science preparation consisted of:

- Biology - 36%
- Chemistry - 23%
- Geology - 26%

***NOTE:*** *Central Oregon's programs require no formal science courses.*

Most students received information about ecosystems (92%) with 765 having one or more formal courses in the topic. Student report at least most (97%) of the professors stressed ecosystems as important to some degree. Students reported they understood ecosystems (95%).

Sixty percent took course(s) in GIS. GIS as a course for all students was added as part of the grant and some students may not have had the opportunity to take the courses.

Forty nine percent rated technical courses of equal importance with general education courses, while 41% responded technical courses were the most important.

Sixty eight percent of the students responded that they could not have successfully completed their program without the required general education. Generally students felt professors put the right amount of emphasis on integrating subjects. , and 99% felt the programs were good to excellent in teach them to solve complex problems.

As with the students currently in the programs, graduates felt the program was challenging bit doable (81%) and taught essential information (71%) that made them excellent (68%) or adequate (32%) technicians for their level of experience.

Job availability and employment:

Most graduates report permanent jobs are limited or non existent in their field (63%). The remaining 37% said jobs were available. The availability might be assumed to be in GIS since that is a new high demand area, however a review of the GIS data indicated that more than 50% indicated that jobs in their area were limited.

Graduates had discussions with advisors about the job market (82%) and reported they felt advisors were "honest" about the situation (83%). Less (56%) reported assistance by the college in seeking employment, and of these 60% rated the assistance as "helpful".

Sixty seven percent of the graduates were employed, most in jobs related to their field of study. However, only a third of the jobs were of a permanent nature. Jobs were generally in governmental agencies (64%) with 13% self employed and 23% working for private companies.

Of those not employed 85% were not currently seeking employment.

Value of subjects in the program based on job experience:

The following data was reported by the graduates employed in areas related to their program ($n$ = 23):

(NOTE: Percentages indicate a rating of either very or somewhat important on the job)

| | |
|---|---|
| Mathematics | |
| Arithmetic | 100% |
| Trigonometry | 82% |
| Geometry | 86% |
| Algebra | 82% |
| Statistics | 86% |

| | |
|---|---|
| Scientific methodology | 86% |
| Understanding the ecosystem | 82% |

(NOTE: Graduates reported their employers "very committed" [62%] or "somewhat committed" to managing their areas in a sound ecosystem manner.)

Technical courses were rated as equally important as general education by 46% and as most important by 36% of the employed graduates.

Future educational plans:

Sixty four percent of the 39 graduates indicated they were interested in a bachelors degree. Of these 25 indicated they were currently enrolled in further education (half full time & half part time).

The reported transfer of credits of those enrolled was:

| | |
|---|---|
| Almost all | 24% |
| Half to 75% | 20% |
| Less than half | 56% |

Graduate demographics:

| **AGE** | **NUMBER** | **PERCENT** |
|---|---|---|
| 22 or younger | 6 | 15% |
| 23 to 28 | 13 | 33% |
| 29 to 35 | 10 | 26% |
| 36 or older | 10 | 26% |

| **GENDER** | **NUMBER** | **PERCENT** |
|---|---|---|
| Male | 18 | 46% |
| Female | 21 | 54% |

Approximately half (54%) of the graduates ($n$ = 39) entered their program from high school, the remainder had had some college (7 with degrees).

**Employer Survey:**

A total of 53 employers returned usable survey forms. Of these responses 21 applied to co - op students or interns. Of the remaining 32 responses six were in permanent positions, 21 in full time temporary jobs, and 2 part time employees.

The employers were primarily governmental agencies (83%).

Of the inter/employee mix 23% were employed in GIS and the remainder in natural resource related areas.

Importance of certain skills and knowledge on the job:

Mathematics by type

| | |
|---|---|
| Arithmetic | 91% |
| Trigonometry | 40% |
| Geometry | 64% |
| Algebra | 70% |
| Statistics | 55% |
| Higher level math | 9% |

Apply principles of science

| | |
|---|---|
| Very | 38% |
| Somewhat | 53% |

Apply principles of GIS

| | |
|---|---|
| Very | 29% |
| Somewhat | 37% |

Apply ecosystem concepts

| | |
|---|---|
| Very | 36% |
| Somewhat | 34% |

Ability to communicate effectively

| | |
|---|---|
| Very | 92% |
| Somewhat | 8% |

Effectiveness in solving problems

| | |
|---|---|
| Very | 42% |
| Somewhat | 54% |

Knowledge of Technical applications

| | | |
|---|---|---|
| | Most important | 50% |
| | Equal with general education | 50% |
| Very | 38% | |
| | Somewhat | 53% |

Degree program employees meet expectations:

| SKILL & KNOWLEDGE | EXCEEDED | MET | BELOW |
|---|---|---|---|
| Technical | 43% | 55% | 2% |
| Mathematics | 33% | 51% | |
| (NOTE: 14% [7] reported "not important") | | | |
| Science | 42% | 52% | |
| (NOTE: 6% [3] reported "not important") | | | |
| GIS | 27% | 35% | 2% |
| (NOTE: 36% [18] reported "not important") | | | |
| Communications | 62% | 36% | 2% |
| Analyze & solve problems | 62% | 38% | |

The employers described the education received by employees as:

| | |
|---|---|
| Excellent | 17% |
| More than adequate | 39% |
| Adequate for most areas | 42% |
| Less than adequate | 2% |

Employers reported that the would very likely (83%) or somewhat likely (17%) to hire graduates of the program (83%).

# NORTHWEST CENTER FOR SUSTAINABLE RESOURCES

# STUDENT SUCCESS DATA AND REPORT FEBRUARY 1999

## VOLUME I I - APPENDICIES


PREPARED BY THE

WESTERN CENTER FOR COMMUNITY COLLEGE DEVELOPMENT

OREGON STATE UNIVERSITY

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## INTRODUCTION

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For further information concerning Volume I (the basic report) contact:

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# APPENDIX A

# RESPONSE RATES

## SUSTAINABLE RESOURCES SURVEY OF NATURAL RESOURCE EMPLOYERS, GRADUATE AND STUDENTS

### Disposition

**Type 1: Employers**

| | Population | Number Sent | Not Returned | Complete |
|---|---|---|---|---|
| Central Oregon C. C. | 27 | 27 | 6 | 21 |
| Chemeketa C. C. | 15 | 15 | 4 | 11 |
| Grays Harbor College | 28 | 28 | 11 | 17 |
| Feather River College | 9 | 9 | 5 | 4 |
| Shasta C.C. (did not participate) | | | | |

**Type 2: Graduates**

| | Population | Handed Out | Declined | Wrong Group* | Complete |
|---|---|---|---|---|---|
| Central Oregon C. C. | 35 | 35 | 8 | 1 | 26 |
| Chemeketa C. C. | 7 | 7 | 0 | 0 | 7 |
| Grays Harbor College | 11 | ? | ? | 0 | 5 |
| Feather River College | 9 | 9 | 8 | 0 | 1 |
| Shasta C. C. (did not participate) | | | | | |

***Did not graduate**

**Type 3: Students**

| | Population | Handed Out | Declined | Complete |
|---|---|---|---|---|
| Central Oregon C. C. | 18 | 18 | 2 | 16 |
| Chemeketa C. C. | 28 | 28 | 5 | 23 |
| Grays Harbor College | 38 | 38 | 19 | 19 |
| Feather River College | 34 | 17 | 0 | 17 |
| Shasta C. C. | 110 | 110 | 36 | 74 |

# STUDENT DATA PROFILE
# by
# COLLEGE TOTALS

# Natural Resource Students Survey

COLLEGE

| CC | Frequency | Percent |
|---|---|---|
| Central Oregon | 16 | 10.7 |
| Chemekata | 23 | 15.4 |
| Grays Harbor | 19 | 12.8 |
| Feather River | 17 | 11.4 |
| Shasta | 74 | 49.7 |

What is your major field?

| Q1 | Frequency | Percent |
|---|---|---|
| Wildlife | 19 | 13.1 |
| Forestry | 23 | 15.9 |
| Forestry-Option | 8 | 5.5 |
| Water Resources | 2 | 1.4 |
| Natural Resources | 21 | 14.5 |
| Agriculture | 29 | 20.0 |
| Equine | 1 | 0.7 |
| Horticulture | 16 | 11.0 |
| Fisheries | 10 | 6.9 |
| GIS | 16 | 11.0 |

Frequency Missing = 4

How long have you been enrolled?

| Q2 | Frequency | Percent |
|---|---|---|
| Less than one year | 67 | 45.3 |
| More then one less than two years | 47 | 31.8 |
| Two to three years | 27 | 18.2 |
| More than three less than four years | 3 | 2.0 |
| Four years or more | 4 | 2.7 |

Frequency Missing = 1

3. Indicate whether you took the following mathematics courses

a. Technical mathematics

| Q3A | Frequency | Percent |
|---|---|---|
| Yes | 39 | 26.5 |
| No | 108 | 73.5 |

Frequency Missing = 2

b. Trigonometry

| Q3B | Frequency | Percent |
|---|---|---|
| Yes | 30 | 20.4 |
| No | 117 | 79.6 |

Frequency Missing = 2

c. Geometry

| Q3C | Frequency | Percent |
|---|---|---|
| Yes | 54 | 36.7 |
| No | 93 | 63.3 |

Frequency Missing = 2

d. Algebra(non-college level)

| Q3D | Frequency | Percent |
|---|---|---|
| Yes | 94 | 63.9 |
| No | 53 | 36.1 |

Frequency Missing = 2

e. Algebra(college level)

| Q3E | Frequency | Percent |
|---|---|---|
| Yes | 58 | 39.7 |
| No | 88 | 60.3 |

Frequency Missing = 3

f. Statistics

| Q3F | Frequency | Percent |
|---|---|---|
| Yes | 37 | 25.5 |
| No | 108 | 74.5 |

Frequency Missing = 4

g. College level mathematics

| Q3G | Frequency | Percent |
|---|---|---|
| Yes | 33 | 22.8 |
| No | 112 | 77.2 |

Frequency Missing = 4

4. How often have used mathematics?

| Q4 | Frequency | Percent |
|---|---|---|
| Never | 23 | 15.5 |
| Often | 61 | 41.2 |
| Occasionally | 64 | 43.2 |

Frequency Missing = 1

4a. Indicate if each are of mathematics was useful

a. Basic arithmetic

| Q4AA | Frequency | Percent |
|---|---|---|
| Very | 94 | 75.8 |
| Somewhat | 21 | 16.9 |
| Not used | 9 | 7.3 |

Frequency Missing = 25

b. Trigonometry

| Q4AB | Frequency | Percent |
|---|---|---|
| Very | 18 | 14.5 |
| Somewhat | 30 | 24.2 |
| Not used | 76 | 61.3 |

Frequency Missing = 25

c. Geometry

| Q4AC | Frequency | Percent |
|---|---|---|
| Very | 22 | 17.7 |
| Somewhat | 47 | 37.9 |
| Not used | 55 | 44.4 |

Frequency Missing = 25

d. Algebra

| Q4AD | Frequency | Percent |
|---|---|---|
| Very | 39 | 31.5 |
| Somewhat | 61 | 49.2 |
| Not used | 24 | 19.4 |

Frequency Missing = 25

e. Statistics

| Q4AE | Frequency | Percent |
|---|---|---|
| Very | 26 | 21.0 |
| Somewhat | 36 | 29.0 |
| Not used | 62 | 50.0 |

Frequency Missing = 25

5. Was learning math important?

| Q5 | Frequency | Percent |
|---|---|---|
| Important | 124 | 84.9 |
| Not important | 22 | 15.1 |

Frequency Missing = 3

6. Profs stress math as important

| Q6 | Frequency | Percent |
|---|---|---|
| Yes, most did | 58 | 39.2 |
| Yes, some did | 71 | 48.0 |
| No | 19 | 12.8 |

Frequency Missing = 1

7. Have you taken science courses?

| Q7 | Frequency | Percent |
|---|---|---|
| No | 69 | 46.3 |
| Yes | 80 | 53.7 |

7a. Indicate whether you took the following science courses

a. General biology

| Q7AA | Frequency | Percent |
|---|---|---|
| Yes | 41 | 51.9 |
| No | 38 | 48.1 |

Frequency Missing = 70

b. Specialized biology or zoology

| Q7AB | Frequency | Percent |
|---|---|---|
| Yes | 20 | 25.3 |
| No | 59 | 74.7 |

Frequency Missing = 70

c. Chemistry

| Q7AC | Frequency | Percent |
|---|---|---|
| Yes | 35 | 44.3 |
| No | 44 | 55.7 |

Frequency Missing = 70

d. Geology

| Q7AD | Frequency | Percent |
|---|---|---|
| Yes | 17 | 21.5 |
| No | 62 | 78.5 |

Frequency Missing = 70

e. Other

| Q7AE | Frequency | Percent |
|---|---|---|
| Yes | 39 | 48.8 |
| No | 41 | 51.3 |

Frequency Missing = 69

7b. Which was used most in science?

| Q7B | Frequency | Percent |
|---|---|---|
| Only lecture | 2 | 2.5 |
| Lecture and labs in an inside lab | 22 | 27.8 |
| Lecture and labs in the field | 10 | 12.7 |
| Lecture, science labs and field labs | 45 | 57.0 |

Frequency Missing = 70

7c. How often did use science techniques

| Q7C | Frequency | Percent |
|---|---|---|
| Often | 38 | 47.5 |
| Occasionally | 42 | 52.5 |

Frequency Missing = 69

8. How important is science?

| Q8 | Frequency | Percent |
|---|---|---|
| Important | 128 | 88.3 |
| Unimportant | 17 | 11.7 |

Frequency Missing = 4

9. Profs stress science as important

| Q9 | Frequency | Percent |
|---|---|---|
| Yes, most did | 64 | 43.8 |
| Yes, some did | 56 | 38.4 |
| No | 26 | 17.8 |

Frequency Missing = 3

10. Have you taken ecosystem science?

| Q10 | Frequency | Percent |
|---|---|---|
| Yes | 82 | 56.2 |
| No | 64 | 43.8 |

Frequency Missing = 3

11. Were concepts of ecosystem taught?

| Q11 | Frequency | Percent |
|---|---|---|
| Yes | 105 | 73.4 |
| No | 38 | 26.6 |

Frequency Missing = 6

12. Profs stress importance of ecosystem

| Q12 | Frequency | Percent |
|---|---|---|
| Yes, most did | 80 | 56.3 |
| Yes, some did | 45 | 31.7 |
| No | 17 | 12.0 |

Frequency Missing = 7

13. Do you understand ecosystems?

| Q13 | Frequency | Percent |
|---|---|---|
| Yes | 122 | 86.5 |
| No | 19 | 13.5 |

Frequency Missing = 8

14. Understanding of ecological successi

| Q14 | Frequency | Percent |
|---|---|---|
| Plant and animal community change | 63 | 47.4 |
| Energy flow through ecosystems | 6 | 4.5 |
| Interrelationships between living and non-living | 57 | 42.9 |
| Abundance of plant and animal communities | 7 | 5.3 |

Frequency Missing = 16

15. Food web describe which?

| Q15 | Frequency | Percent |
|---|---|---|
| Production and accumulation of carbohydrates | 22 | 16.5 |
| Energy flow through an ecosystem | 77 | 57.9 |
| Plant and animal community change | 14 | 10.5 |
| Population growth in an ecosystem | 20 | 15.0 |

Frequency Missing = 16

16. Diff between community & ecosystem

| Q16 | Frequency | Percent |
|---|---|---|
| Plants | 16 | 11.9 |
| Animals | 10 | 7.4 |
| Bacteria | 23 | 17.0 |
| Humans | 8 | 5.9 |
| The physical environment | 78 | 57.8 |

Frequency Missing = 14

17. Trees have the ability to

| Q17 | Frequency | Percent |
|---|---|---|
| Shade soils | 7 | 4.9 |
| Convert Carbon dioxide into carbohydrates | 30 | 21.1 |
| Store large quantities of water | 3 | 2.1 |
| Provide wildlife habitat | 7 | 4.9 |
| Produce oxygen | 95 | 66.9 |

Frequency Missing = 7

18. Which decreases as succession proceed

| Q18 | Frequency | Percent |
|---|---|---|
| Soil depth | 27 | 21.4 |
| Humidity | 7 | 5.6 |
| Animal diversity | 63 | 50.0 |
| Soil temperature | 29 | 23.0 |

Frequency Missing = 23

19. Least likely part of forest manageme

| Q19 | Frequency | Percent |
|---|---|---|
| Maintain decomposition and nitrogen fixation | 6 | 4.6 |
| Involve society in decision making | 25 | 19.1 |
| Use modern imaging techniques | 33 | 25.2 |
| Plant a monoculture of douglas fir | 62 | 47.3 |
| Consider downstream effects | 5 | 3.8 |

Frequency Missing = 18

20. Have you taken a GIS course?

| Q20 | Frequency | Percent |
|---|---|---|
| No | 114 | 76.5 |
| Yes | 35 | 23.5 |

20a. How often did you use GIS?

| Q20A | Frequency | Percent |
|---|---|---|
| Often | 20 | 57.1 |
| Occasionally | 14 | 40.0 |
| Never | 1 | 2.9 |

Frequency Missing = 114

20b. Was learning GIS important?

| Q20B | Frequency | Percent |
|---|---|---|
| Important | 34 | 97.1 |
| Unimportant | 1 | 2.9 |

Frequency Missing = 114

20c. Profs stress GIS as important

| Q20C | Frequency | Percent |
|---|---|---|
| Yes, most did | 27 | 77.1 |
| Yes, some did | 7 | 20.0 |
| No | 1 | 2.9 |

Frequency Missing = 114

21. Have taken part in job education

| Q21 | Frequency | Percent |
|---|---|---|
| No | 88 | 59.1 |
| Yes | 61 | 40.9 |

21a. How important was work experience?

| Q21A | Frequency | Percent |
|---|---|---|
| Very important | 48 | 78.7 |
| Somewhat important but not essential | 12 | 19.7 |
| Not important | 1 | 1.6 |

Frequency Missing = 88

21b. Did work involve technical skills?

| Q21B | Frequency | Percent |
|---|---|---|
| Yes | 55 | 90.2 |
| No | 6 | 9.8 |

Frequency Missing = 88

21c. How often did you use the skills in each course

a. Mathematics courses

| Q21CA | Frequency | Percent |
|---|---|---|
| Often | 23 | 38.3 |
| Sometimes | 27 | 45.0 |
| Never | 7 | 11.7 |
| Have not taken | 3 | 5.0 |

Frequency Missing = 89

b. Science courses

| Q21CB | Frequency | Percent |
|---|---|---|
| Often | 19 | 32.2 |
| Sometimes | 23 | 39.0 |
| Never | 7 | 11.9 |
| Have not taken | 10 | 16.9 |

Frequency Missing = 90

c. GIS courses

| Q21CC | Frequency | Percent |
|---|---|---|
| Often | 10 | 17.5 |
| Sometimes | 11 | 19.3 |
| Never | 11 | 19.3 |
| Have not taken | 25 | 43.9 |

Frequency Missing = 92

d. Communications

| Q21CD | Frequency | Percent |
|---|---|---|
| Often | 41 | 68.3 |
| Sometimes | 14 | 23.3 |
| Never | 5 | 8.3 |

Frequency Missing = 89

22. Rating of academic level

| Q22 | Frequency | Percent |
|---|---|---|
| Very difficult and required special effort | 17 | 11.7 |
| Challenging but within my abilities | 118 | 81.4 |
| Fairly easy and required minimal effort | 10 | 6.9 |

Frequency Missing = 4

23. Overall results of education

| Q23 | Frequency | Percent |
|---|---|---|
| Taught me essential knowledge | 95 | 64.6 |
| Important knowledge but unimportant parts | 39 | 26.5 |
| Important knowledge but not essential | 7 | 4.8 |
| Other | 6 | 4.1 |

Frequency Missing = 2

24. Do you have an advisor?

| Q24 | Frequency | Percent |
|---|---|---|
| No | 46 | 30.9 |
| Yes | 103 | 69.1 |

24a. How do you meet advisor?

| Q24A | Frequency | Percent |
|---|---|---|
| At least once a month | 30 | 29.4 |
| One or two times a term | 60 | 58.8 |
| Never | 12 | 11.8 |

Frequency Missing = 47

24b. Has advisor discussed job market?

| Q24B | Frequency | Percent |
|---|---|---|
| Yes | 69 | 67.6 |
| No | 33 | 32.4 |

Frequency Missing = 47

25. Was sequence clearly explained?

| Q25 | Frequency | Percent |
|---|---|---|
| Yes | 89 | 61.4 |
| No | 56 | 38.6 |

Frequency Missing = 4

26. Have taken recommended sequence

| Q26 | Frequency | Percent |
|---|---|---|
| Yes, most courses | 52 | 35.1 |
| Yes, some courses | 54 | 36.5 |
| No. not following the sequence | 19 | 12.8 |
| I am not sure | 23 | 15.5 |

Frequency Missing = 1

27. What is your class standing

| Q27 | Frequency | Percent |
|---|---|---|
| Freshman | 66 | 44.9 |
| First term senior | 41 | 27.9 |
| Second term senior | 40 | 27.2 |

Frequency Missing = 2

28. Mathematics in high school

| Q28 | Frequency | Percent |
|---|---|---|
| Elementary algebra | 35 | 24.5 |
| Intermediate algebra | 60 | 42.0 |
| Advanced mathematics | 26 | 18.2 |
| Other | 22 | 15.4 |

Frequency Missing = 6

29. Indicate whether you completed the following science courses

a. General science

| Q29A | Frequency | Percent |
|---|---|---|
| Yes | 129 | 87.8 |
| No | 18 | 12.2 |

Frequency Missing = 2

b. Biology

| Q29B | Frequency | Percent |
|---|---|---|
| Yes | 94 | 63.9 |
| No | 53 | 36.1 |

Frequency Missing = 2

c. Chemistry

| Q29C | Frequency | Percent |
|---|---|---|
| Yes | 55 | 37.4 |
| No | 92 | 62.6 |

Frequency Missing = 2

d. Physics

| Q29D | Frequency | Percent |
|---|---|---|
| Yes | 23 | 15.6 |
| No | 124 | 84.4 |

Frequency Missing = 2

e. Environmental Science

| Q29E | Frequency | Percent |
|---|---|---|
| Yes | 63 | 42.9 |
| No | 84 | 57.1 |

Frequency Missing = 2

30. Education level prior to program

| Q30 | Frequency | Percent |
|---|---|---|
| High school graduate or GED | 88 | 59.9 |
| Less than two years or college | 31 | 21.1 |
| More than two years but did not graduate | 9 | 6.1 |
| Associate degree | 5 | 3.4 |
| Bachelor degree | 8 | 5.4 |
| Other | 6 | 4.1 |

Frequency Missing = 2

31. Did you take admission test?

| Q31 | Frequency | Percent |
|---|---|---|
| No | 43 | 29.1 |
| Yes | 105 | 70.9 |

Frequency Missing = 1

31a. Did you take the following to prepare for college work?

a. Special courses in mathematics

| Q31AA | Frequency | Percent |
|---|---|---|
| Yes | 46 | 44.7 |
| No | 57 | 55.3 |

Frequency Missing = 46

b. Special courses in english

| Q31AB | Frequency | Percent |
|---|---|---|
| Yes | 38 | 36.9 |
| No | 65 | 63.1 |

Frequency Missing = 46

c. Special courses in reading

| Q31AC | Frequency | Percent |
|---|---|---|
| Yes | 16 | 15.5 |
| No | 87 | 84.5 |

Frequency Missing = 46

32. Plans upon graduation

| Q32 | Frequency | Percent |
|---|---|---|
| Employment in my field | 73 | 50.7 |
| Employment not in some other area | 4 | 2.8 |
| Continue my education | 67 | 46.5 |

Frequency Missing = 5

33. How likely to obtain bachelors degre

| Q33 | Frequency | Percent |
|---|---|---|
| Very likely | 63 | 43.8 |
| Somewhat likely | 51 | 35.4 |
| Not too likely | 24 | 16.7 |
| Not at all likely | 6 | 4.2 |

Frequency Missing = 5

34. Current employment status

| Q34 | Frequency | Percent |
|---|---|---|
| Not employed for pay | 61 | 41.8 |
| Part-time in area related to my program | 35 | 24.0 |
| Full-time in area related to my program | 10 | 6.8 |
| Part-time in area not related to program | 35 | 24.0 |
| Full-time in area not related to program | 5 | 3.4 |

Frequency Missing = 3

35. Age category

| Q35 | Frequency | Percent |
|---|---|---|
| 22 or younger | 70 | 47.9 |
| 23 to 28 | 21 | 14.4 |
| 29 to 35 | 15 | 10.3 |
| 36 to 45 | 31 | 21.2 |
| 46 or older | 9 | 6.2 |

Frequency Missing = 3

36. Gender

| Q36 | Frequency | Percent |
|---|---|---|
| Male | 86 | 58.5 |
| Female | 61 | 41.5 |

Frequency Missing = 2

# Natural Resource Students Survey

COLLEGE

| CC | Frequency | Percent |
|---|---|---|
| Central Oregon | 16 | 10.7 |
| Chemekata | 23 | 15.4 |
| Grays Harbor | 19 | 12.8 |
| Feather River | 17 | 11.4 |
| Shasta | 74 | 49.7 |

What is your major field?

| Q1 | Frequency | Percent |
|---|---|---|
| Wildlife | 19 | 13.1 |
| Forestry | 23 | 15.9 |
| Forestry-Option | 8 | 5.5 |
| Water Resources | 2 | 1.4 |
| Natural Resources | 21 | 14.5 |
| Agriculture | 29 | 20.0 |
| Equine | 1 | 0.7 |
| Horticulture | 16 | 11.0 |
| Fisheries | 10 | 6.9 |
| GIS | 16 | 11.0 |

Frequency Missing = 4

How long have you been enrolled?

| Q2 | Frequency | Percent |
|---|---|---|
| Less than one year | 67 | 45.3 |
| More then one less than two years | 47 | 31.8 |
| Two to three years | 27 | 18.2 |
| More than three less than four years | 3 | 2.0 |
| Four years or more | 4 | 2.7 |

Frequency Missing = 1

3. Indicate whether you took the following mathematics courses

a. Technical mathematics

| Q3A | Frequency | Percent |
|---|---|---|
| Yes | 39 | 26.5 |
| No | 108 | 73.5 |

Frequency Missing = 2

b. Trigonometry

| Q3B | Frequency | Percent |
|---|---|---|
| Yes | 30 | 20.4 |
| No | 117 | 79.6 |

Frequency Missing = 2

c. Geometry

| Q3C | Frequency | Percent |
|---|---|---|
| Yes | 54 | 36.7 |
| No | 93 | 63.3 |

Frequency Missing = 2

d. Algebra(non-college level)

| Q3D | Frequency | Percent |
|---|---|---|
| Yes | 94 | 63.9 |
| No | 53 | 36.1 |

Frequency Missing = 2

e. Algebra(college level)

| Q3E | Frequency | Percent |
|---|---|---|
| Yes | 58 | 39.7 |
| No | 88 | 60.3 |

Frequency Missing = 3

f. Statistics

| Q3F | Frequency | Percent |
|---|---|---|
| Yes | 37 | 25.5 |
| No | 108 | 74.5 |

Frequency Missing = 4

g. College level mathematics

| Q3G | Frequency | Percent |
|---|---|---|
| Yes | 33 | 22.8 |
| No | 112 | 77.2 |

Frequency Missing = 4

4. How often have used mathematics?

| Q4 | Frequency | Percent |
|---|---|---|
| Never | 23 | 15.5 |
| Often | 61 | 41.2 |
| Occasionally | 64 | 43.2 |

Frequency Missing = 1

4a. Indicate if each are of mathematics was useful

a. Basic arithmetic

| Q4AA | Frequency | Percent |
|---|---|---|
| Very | 94 | 75.8 |
| Somewhat | 21 | 16.9 |
| Not used | 9 | 7.3 |

Frequency Missing = 25

b. Trigonometry

| Q4AB | Frequency | Percent |
|---|---|---|
| Very | 18 | 14.5 |
| Somewhat | 30 | 24.2 |
| Not used | 76 | 61.3 |

Frequency Missing = 25

c. Geometry

| Q4AC | Frequency | Percent |
|---|---|---|
| Very | 22 | 17.7 |
| Somewhat | 47 | 37.9 |
| Not used | 55 | 44.4 |

Frequency Missing = 25

d. Algebra

| Q4AD | Frequency | Percent |
|---|---|---|
| Very | 39 | 31.5 |
| Somewhat | 61 | 49.2 |
| Not used | 24 | 19.4 |

Frequency Missing = 25

e. Statistics

| Q4AE | Frequency | Percent |
|---|---|---|
| Very | 26 | 21.0 |
| Somewhat | 36 | 29.0 |
| Not used | 62 | 50.0 |

Frequency Missing = 25

5. Was learning math important?

| Q5 | Frequency | Percent |
|---|---|---|
| Important | 124 | 84.9 |
| Not important | 22 | 15.1 |

Frequency Missing = 3

6. Profs stress math as important

| Q6 | Frequency | Percent |
|---|---|---|
| Yes, most did | 58 | 39.2 |
| Yes, some did | 71 | 48.0 |
| No | 19 | 12.8 |

Frequency Missing = 1

7. Have you taken science courses?

| Q7 | Frequency | Percent |
|---|---|---|
| No | 69 | 46.3 |
| Yes | 80 | 53.7 |

7a. Indicate whether you took the following science courses

a. General biology

| Q7AA | Frequency | Percent |
|---|---|---|
| Yes | 41 | 51.9 |
| No | 38 | 48.1 |

Frequency Missing = 70

b. Specialized biology or zoology

| Q7AB | Frequency | Percent |
|---|---|---|
| Yes | 20 | 25.3 |
| No | 59 | 74.7 |

Frequency Missing = 70

c. Chemistry

| Q7AC | Frequency | Percent |
|---|---|---|
| Yes | 35 | 44.3 |
| No | 44 | 55.7 |

Frequency Missing = 70

d. Geology

| Q7AD | Frequency | Percent |
|---|---|---|
| Yes | 17 | 21.5 |
| No | 62 | 78.5 |

Frequency Missing = 70

e. Other

| Q7AE | Frequency | Percent |
|---|---|---|
| Yes | 39 | 48.8 |
| No | 41 | 51.3 |

Frequency Missing = 69

7b. Which was used most in science?

| Q7B | Frequency | Percent |
|---|---|---|
| Only lecture | 2 | 2.5 |
| Lecture and labs in an inside lab | 22 | 27.8 |
| Lecture and labs in the field | 10 | 12.7 |
| Lecture, science labs and field labs | 45 | 57.0 |

Frequency Missing = 70

7c. How often did use science techniques

| Q7C | Frequency | Percent |
|---|---|---|
| Often | 38 | 47.5 |
| Occasionally | 42 | 52.5 |

Frequency Missing = 69

8. How important is science?

| Q8 | Frequency | Percent |
|---|---|---|
| Important | 128 | 88.3 |
| Unimportant | 17 | 11.7 |

Frequency Missing = 4

9. Profs stress science as important

| Q9 | Frequency | Percent |
|---|---|---|
| Yes, most did | 64 | 43.8 |
| Yes, some did | 56 | 38.4 |
| No | 26 | 17.8 |

Frequency Missing = 3

10. Have you taken ecosystem science?

| Q10 | Frequency | Percent |
|---|---|---|
| Yes | 82 | 56.2 |
| No | 64 | 43.8 |

Frequency Missing = 3

11. Were concepts of ecosystem taught?

| Q11 | Frequency | Percent |
|---|---|---|
| Yes | 105 | 73.4 |
| No | 38 | 26.6 |

Frequency Missing = 6

12. Profs stress importance of ecosystem

| Q12 | Frequency | Percent |
|---|---|---|
| Yes, most did | 80 | 56.3 |
| Yes, some did | 45 | 31.7 |
| No | 17 | 12.0 |

Frequency Missing = 7

13. Do you understand ecosystems?

| Q13 | Frequency | Percent |
|---|---|---|
| Yes | 122 | 86.5 |
| No | 19 | 13.5 |

Frequency Missing = 8

14. Understanding of ecological successi

| Q14 | Frequency | Percent |
|---|---|---|
| Plant and animal community change | 63 | 47.4 |
| Energy flow through ecosystems | 6 | 4.5 |
| Interrelationships between living and non-living | 57 | 42.9 |
| Abundance of plant and animal communities | 7 | 5.3 |

Frequency Missing = 16

15. Food web describe which?

| Q15 | Frequency | Percent |
|---|---|---|
| Production and accumulation of carbohydrates | 22 | 16.5 |
| Energy flow through an ecosystem | 77 | 57.9 |
| Plant and animal community change | 14 | 10.5 |
| Population growth in an ecosystem | 20 | 15.0 |

Frequency Missing = 16

16. Diff between community & ecosystem

| Q16 | Frequency | Percent |
|---|---|---|
| Plants | 16 | 11.9 |
| Animals | 10 | 7.4 |
| Bacteria | 23 | 17.0 |
| Humans | 8 | 5.9 |
| The physical environment | 78 | 57.8 |

Frequency Missing = 14

17. Trees have the ability to

| Q17 | Frequency | Percent |
|---|---|---|
| Shade soils | 7 | 4.9 |
| Convert Carbon dioxide into carbohydrates | 30 | 21.1 |
| Store large quantities of water | 3 | 2.1 |
| Provide wildlife habitat | 7 | 4.9 |
| Produce oxygen | 95 | 66.9 |

Frequency Missing = 7

18. Which decreases as succession proceed

| Q18 | Frequency | Percent |
|---|---|---|
| Soil depth | 27 | 21.4 |
| Humidity | 7 | 5.6 |
| Animal diversity | 63 | 50.0 |
| Soil temperature | 29 | 23.0 |

Frequency Missing = 23

19. Least likely part of forest manageme

| Q19 | Frequency | Percent |
|---|---|---|
| Maintain decomposition and nitrogen fixation | 6 | 4.6 |
| Involve society in decision making | 25 | 19.1 |
| Use modern imaging techniques | 33 | 25.2 |
| Plant a monoculture of douglas fir | 62 | 47.3 |
| Consider downstream effects | 5 | 3.8 |

Frequency Missing = 18

20. Have you taken a GIS course?

| Q20 | Frequency | Percent |
|---|---|---|
| No | 114 | 76.5 |
| Yes | 35 | 23.5 |

20a. How often did you use GIS?

| Q20A | Frequency | Percent |
|---|---|---|
| Often | 20 | 57.1 |
| Occasionally | 14 | 40.0 |
| Never | 1 | 2.9 |

Frequency Missing = 114

20b. Was learning GIS important?

| Q20B | Frequency | Percent |
|---|---|---|
| Important | 34 | 97.1 |
| Unimportant | 1 | 2.9 |

Frequency Missing = 114

20c. Profs stress GIS as important

| Q20C | Frequency | Percent |
|---|---|---|
| Yes, most did | 27 | 77.1 |
| Yes, some did | 7 | 20.0 |
| No | 1 | 2.9 |

Frequency Missing = 114

21. Have taken part in job education

| Q21 | Frequency | Percent |
|---|---|---|
| No | 88 | 59.1 |
| Yes | 61 | 40.9 |

21a. How important was work experience?

| Q21A | Frequency | Percent |
|---|---|---|
| Very important | 48 | 78.7 |
| Somewhat important but not essential | 12 | 19.7 |
| Not important | 1 | 1.6 |

Frequency Missing = 88

21b. Did work involve technical skills?

| Q21B | Frequency | Percent |
|---|---|---|
| Yes | 55 | 90.2 |
| No | 6 | 9.8 |

Frequency Missing = 88

21c. How often did you use the skills in each course

a. Mathematics courses

| Q21CA | Frequency | Percent |
|---|---|---|
| Often | 23 | 38.3 |
| Sometimes | 27 | 45.0 |
| Never | 7 | 11.7 |
| Have not taken | 3 | 5.0 |

Frequency Missing = 89

b. Science courses

| Q21CB | Frequency | Percent |
|---|---|---|
| Often | 19 | 32.2 |
| Sometimes | 23 | 39.0 |
| Never | 7 | 11.9 |
| Have not taken | 10 | 16.9 |

Frequency Missing = 90

c. GIS courses

| Q21CC | Frequency | Percent |
|---|---|---|
| Often | 10 | 17.5 |
| Sometimes | 11 | 19.3 |
| Never | 11 | 19.3 |
| Have not taken | 25 | 43.9 |

Frequency Missing = 92

d. Communications

| Q21CD | Frequency | Percent |
|---|---|---|
| Often | 41 | 68.3 |
| Sometimes | 14 | 23.3 |
| Never | 5 | 8.3 |

Frequency Missing = 89

22. Rating of academic level

| Q22 | Frequency | Percent |
|---|---|---|
| Very difficult and required special effort | 17 | 11.7 |
| Challenging but within my abilities | 118 | 81.4 |
| Fairly easy and required minimal effort | 10 | 6.9 |

Frequency Missing = 4

23. Overall results of education

| Q23 | Frequency | Percent |
|---|---|---|
| Taught me essential knowledge | 95 | 64.6 |
| Important knowledge but unimportant parts | 39 | 26.5 |
| Important knowledge but not essential | 7 | 4.8 |
| Other | 6 | 4.1 |

Frequency Missing = 2

24. Do you have an advisor?

| Q24 | Frequency | Percent |
|---|---|---|
| No | 46 | 30.9 |
| Yes | 103 | 69.1 |

24a. How do you meet advisor?

| Q24A | Frequency | Percent |
|---|---|---|
| At least once a month | 30 | 29.4 |
| One or two times a term | 60 | 58.8 |
| Never | 12 | 11.8 |

Frequency Missing = 47

24b. Has advisor discussed job market?

| Q24B | Frequency | Percent |
|---|---|---|
| Yes | 69 | 67.6 |
| No | 33 | 32.4 |

Frequency Missing = 47

25. Was sequence clearly explained?

| Q25 | Frequency | Percent |
|---|---|---|
| Yes | 89 | 61.4 |
| No | 56 | 38.6 |

Frequency Missing = 4

26. Have taken recommended sequence

| Q26 | Frequency | Percent |
|---|---|---|
| Yes, most courses | 52 | 35.1 |
| Yes, some courses | 54 | 36.5 |
| No. not following the sequence | 19 | 12.8 |
| I am not sure | 23 | 15.5 |

Frequency Missing = 1

27. What is your class standing

| Q27 | Frequency | Percent |
|---|---|---|
| Freshman | 66 | 44.9 |
| First term senior | 41 | 27.9 |
| Second term senior | 40 | 27.2 |

Frequency Missing = 2

28. Mathematics in high school

| Q28 | Frequency | Percent |
|---|---|---|
| Elementary algebra | 35 | 24.5 |
| Intermediate algebra | 60 | 42.0 |
| Advanced mathematics | 26 | 18.2 |
| Other | 22 | 15.4 |

Frequency Missing = 6

29. Indicate whether you completed the following science courses

a. General science

| Q29A | Frequency | Percent |
|---|---|---|
| Yes | 129 | 87.8 |
| No | 18 | 12.2 |

Frequency Missing = 2

b. Biology

| Q29B | Frequency | Percent |
|---|---|---|
| Yes | 94 | 63.9 |
| No | 53 | 36.1 |

Frequency Missing = 2

c. Chemistry

| Q29C | Frequency | Percent |
|---|---|---|
| Yes | 55 | 37.4 |
| No | 92 | 62.6 |

Frequency Missing = 2

d. Physics

| Q29D | Frequency | Percent |
|---|---|---|
| Yes | 23 | 15.6 |
| No | 124 | 84.4 |

Frequency Missing = 2

e. Environmental Science

| Q29E | Frequency | Percent |
|---|---|---|
| Yes | 63 | 42.9 |
| No | 84 | 57.1 |

Frequency Missing = 2

30. Education level prior to program

| Q30 | Frequency | Percent |
|---|---|---|
| High school graduate or GED | 88 | 59.9 |
| Less than two years or college | 31 | 21.1 |
| More than two years but did not graduate | 9 | 6.1 |
| Associate degree | 5 | 3.4 |
| Bachelor degree | 8 | 5.4 |
| Other | 6 | 4.1 |

Frequency Missing = 2

31. Did you take admission test?

| Q31 | Frequency | Percent |
|---|---|---|
| No | 43 | 29.1 |
| Yes | 105 | 70.9 |

Frequency Missing = 1

31a. Did you take the following to prepare for college work?

a. Special courses in mathematics

| Q31AA | Frequency | Percent |
|---|---|---|
| Yes | 46 | 44.7 |
| No | 57 | 55.3 |

Frequency Missing = 46

b. Special courses in english

| Q31AB | Frequency | Percent |
|---|---|---|
| Yes | 38 | 36.9 |
| No | 65 | 63.1 |

Frequency Missing = 46

c. Special courses in reading

| Q31AC | Frequency | Percent |
|---|---|---|
| Yes | 16 | 15.5 |
| No | 87 | 84.5 |

Frequency Missing = 46

32. Plans upon graduation

| Q32 | Frequency | Percent |
|---|---|---|
| Employment in my field | 73 | 50.7 |
| Employment not in some other area | 4 | 2.8 |
| Continue my education | 67 | 46.5 |

Frequency Missing = 5

33. How likely to obtain bachelors degre

| Q33 | Frequency | Percent |
|---|---|---|
| Very likely | 63 | 43.8 |
| Somewhat likely | 51 | 35.4 |
| Not too likely | 24 | 16.7 |
| Not at all likely | 6 | 4.2 |

Frequency Missing = 5

34. Current employment status

| Q34 | Frequency | Percent |
|---|---|---|
| Not employed for pay | 61 | 41.8 |
| Part-time in area related to my program | 35 | 24.0 |
| Full-time in area related to my program | 10 | 6.8 |
| Part-time in area not related to program | 35 | 24.0 |
| Full-time in area not related to program | 5 | 3.4 |

Frequency Missing = 3

35. Age category

| Q35 | Frequency | Percent |
|---|---|---|
| 22 or younger | 70 | 47.9 |
| 23 to 28 | 21 | 14.4 |
| 29 to 35 | 15 | 10.3 |
| 36 to 45 | 31 | 21.2 |
| 46 or older | 9 | 6.2 |

Frequency Missing = 3

36. Gender

| Q36 | Frequency | Percent |
|---|---|---|
| Male | 86 | 58.5 |
| Female | 61 | 41.5 |

Frequency Missing = 2

# STUDENT DATA PROFILE
# by
# LEVEL OF PROGRAM COMPLETION

# Student Survey Broken Down by Class Standing (Question 27)

TABLE OF Q27 BY Q1

Q27(27. What is your class standing)  Q1(What is your major field?)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Wildlife | Forestry | Forestry -Option | Water Resources | Natural Resources | Total |
|---|---|---|---|---|---|---|
| Freshman | 10 | 13 | 4 | 1 | 10 | 64 |
| | 6.99 | 9.09 | 2.80 | 0.70 | 6.99 | 44.76 |
| | 15.63 | 20.31 | 6.25 | 1.56 | 15.63 | |
| | 52.63 | 56.52 | 50.00 | 50.00 | 50.00 | |
| First term senior | 9 | 5 | 2 | 0 | 5 | 41 |
| | 6.29 | 3.50 | 1.40 | 0.00 | 3.50 | 28.67 |
| | 21.95 | 12.20 | 4.88 | 0.00 | 12.20 | |
| | 47.37 | 21.74 | 25.00 | 0.00 | 25.00 | |
| Second term senior | 0 | 5 | 2 | 1 | 5 | 38 |
| | 0.00 | 3.50 | 1.40 | .0.70 | 3.50 | 26.57 |
| | 0.00 | 13.16 | 5.26 | 2.63 | 13.16 | |
| | 0.00 | 21.74 | 25.00 | 50.00 | 25.00 | |
| Total | 19 | 23 | 8 | 2 | 20 | 143 |
| | 13.29 | 16.08 | 5.59 | 1.40 | 13.99 | 100.00 |

(Continued)

TABLE OF Q27 BY Q1

Q27(27. What is your class standing)  Q1(What is your major field?)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Agriculture | Equine | Horticulture | Fisheries | GIS | Total |
|---|---|---|---|---|---|---|
| Freshman | 14 | 0 | 7 | 5 | 0 | 64 |
| | 9.79 | 0.00 | 4.90 | 3.50 | 0.00 | 44.76 |
| | 21.88 | 0.00 | 10.94 | 7.81 | 0.00 | |
| | 48.28 | 0.00 | 43.75 | 55.56 | 0.00 | |
| First term senior | 10 | 1 | 5 | 2 | 2 | 41 |
| | 6.99 | 0.70 | 3.50 | 1.40 | 1.40 | 28.67 |
| | 24.39 | 2.44 | 12.20 | 4.88 | 4.88 | |
| | 34.48 | 100.00 | 31.25 | 22.22 | 12.50 | |
| Second term senior | 5 | 0 | 4 | 2 | 14 | 38 |
| | 3.50 | 0.00 | 2.80 | 1.40 | 9.79 | 26.57 |
| | 13.16 | 0.00 | 10.53 | 5.26 | 36.84 | |
| | 17.24 | 0.00 | 25.00 | 22.22 | 87.50 | |
| Total | 29 | 1 | 16 | 9 | 16 | 143 |
| | 20.28 | 0.70 | 11.19 | 6.29 | 11.19 | 100.00 |

Frequency Missing = 6

TABLE OF Q27 BY Q2

Q27(27. What is your class standing) Q2(How long have you been enrolled?)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Less than one year | More than one less than two years | Two to three years | More than three less than four years | Four years or more | Total |
|---|---|---|---|---|---|---|
| Freshman | 56 | 7 | 2 | 1 | 0 | 66 |
| | 38.36 | 4.79 | 1.37 | 0.68 | 0.00 | 45.21 |
| | 84.85 | 10.61 | 3.03 | 1.52 | 0.00 | |
| | 83.58 | 14.89 | 7.69 | 33.33 | 0.00 | |
| First term senior | 9 | 26 | 5 | 0 | 0 | 40 |
| | 6.16 | 17.81 | 3.42 | 0.00 | 0.00 | 27.40 |
| | 22.50 | 65.00 | 12.50 | 0.00 | 0.00 | |
| | 13.43 | 55.32 | 19.23 | 0.00 | 0.00 | |
| Second term senior | 2 | 14 | 19 | 2 | 3 | 40 |
| | 1.37 | 9.59 | 13.01 | 1.37 | 2.05 | 27.40 |
| | 5.00 | 35.00 | 47.50 | 5.00 | 7.50 | |
| | 2.99 | 29.79 | 73.08 | 66.67 | 100.00 | |
| Total | 67 | 47 | 26 | 3 | 3 | 146 |
| | 45.89 | 32.19 | 17.81 | 2.05 | 2.05 | 100.00 |

Frequency Missing = 3

TABLE OF Q27 BY Q3A

Q27(27. What is your class standing)

Q3A(a. Technical mathematics)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes | No | Total |
|---|---|---|---|
| Freshman | 10 | 55 | 65 |
| | 6.90 | 37.93 | 44.83 |
| | 15.38 | 84.62 | |
| | 25.64 | 51.89 | |
| First term senio r | 10 | 30 | 40 |
| | 6.90 | 20.69 | 27.59 |
| | 25.00 | 75.00 | |
| | 25.64 | 28.30 | |
| Second term seni or | 19 | 21 | 40 |
| | 13.10 | 14.48 | 27.59 |
| | 47.50 | 52.50 | |
| | 48.72 | 19.81 | |
| Total | 39 | 106 | 145 |
| | 26.90 | 73.10 | 100.00 |

Frequency Missing = 4

TABLE OF Q27 BY Q3B

Q27(27. What is your class standing)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Q3B(b. Trigonometry)<br>Yes | <br>No | <br>Total |
|---|---|---|---|
| Freshman | 7<br>4.83<br>10.77<br>23.33 | 58<br>40.00<br>89.23<br>50.43 | 65<br>44.83 |
| First term senio r | 9<br>6.21<br>22.50<br>30.00 | 31<br>21.38<br>77.50<br>26.96 | 40<br>27.59 |
| Second term seni or | 14<br>9.66<br>35.00<br>46.67 | 26<br>17.93<br>65.00<br>22.61 | 40<br>27.59 |
| Total | 30<br>20.69 | 115<br>79.31 | 145<br>100.00 |

Frequency Missing = 4

TABLE OF Q27 BY Q3C

Q27(27. What is your class standing)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Q3C(c. Geometry)<br>Yes | <br>No | <br>Total |
|---|---|---|---|
| Freshman | 20<br>13.79<br>30.77<br>37.04 | 45<br>31.03<br>69.23<br>49.45 | 65<br>44.83 |
| First term senior | 14<br>9.66<br>35.00<br>25.93 | 26<br>17.93<br>65.00<br>28.57 | 40<br>27.59 |
| Second term senior | 20<br>13.79<br>50.00<br>37.04 | 20<br>13.79<br>50.00<br>21.98 | 40<br>27.59 |
| Total | 54<br>37.24 | 91<br>62.76 | 145<br>100.00 |

Frequency Missing = 4

TABLE OF Q27 BY Q3D

Q27(27. What is your class standing)

| | Q3D(d. Algebra(non-college level)) | | |
|---|---|---|---|
| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes | No | Total |
| Freshman | 34 | 31 | 65 |
| | 23.45 | 21.38 | 44.83 |
| | 52.31 | 47.69 | |
| | 36.56 | 59.62 | |
| First term senio r | 27 | 13 | 40 |
| | 18.62 | 8.97 | 27.59 |
| | 67.50 | 32.50 | |
| | 29.03 | 25.00 | |
| Second term seni or | 32 | 8 | 40 |
| | 22.07 | 5.52 | 27.59 |
| | 80.00 | 20.00 | |
| | 34.41 | 15.38 | |
| Total | 93 | 52 | 145 |
| | 64.14 | 35.86 | 100.00 |

Frequency Missing = 4

TABLE OF Q27 BY Q3E

Q27(27. What is your class standing)

| | Q3E(e. Algebra(college level)) | | |
|---|---|---|---|
| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes | No | Total |
| Freshman | 17 | 48 | 65 |
| | 11.81 | 33.33 | 45.14 |
| | 26.15 | 73.85 | |
| | 29.82 | 55.17 | |
| First term senio r | 16 | 23 | 39 |
| | 11.11 | 15.97 | 27.08 |
| | 41.03 | 58.97 | |
| | 28.07 | 26.44 | |
| Second term seni or | 24 | 16 | 40 |
| | 16.67 | 11.11 | 27.78 |
| | 60.00 | 40.00 | |
| | 42.11 | 18.39 | |
| Total | 57 | 87 | 144 |
| | 39.58 | 60.42 | 100.00 |

Frequency Missing = 5

TABLE OF Q27 BY Q3F

Q27(27. What is your class standing)
Q3F(f. Statistics)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes | No | Total |
|---|---|---|---|
| Freshman | 12 | 52 | 64 |
| | 8.39 | 36.36 | 44.76 |
| | 18.75 | 81.25 | |
| | 33.33 | 48.60 | |
| First term senio | 9 | 30 | 39 |
| r | 6.29 | 20.98 | 27.27 |
| | 23.08 | 76.92 | |
| | 25.00 | 28.04 | |
| Second term seni | 15 | 25 | 40 |
| or | 10.49 | 17.48 | 27.97 |
| | 37.50 | 62.50 | |
| | 41.67 | 23.36 | |
| Total | 36 | 107 | 143 |
| | 25.17 | 74.83 | 100.00 |

Frequency Missing = 6

TABLE OF Q27 BY Q3G

Q27(27. What is your class standing)

Q3G(g. College level mathematics)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes | No | Total |
|---|---|---|---|
| Freshman | 13 | 50 | 63 |
| | 9.09 | 34.97 | 44.06 |
| | 20.63 | 79.37 | |
| | 40.63 | 45.05 | |
| First term senio r | 8 | 32 | 40 |
| | 5.59 | 22.38 | 27.97 |
| | 20.00 | 80.00 | |
| | 25.00 | 28.83 | |
| Second term seni or | 11 | 29 | 40 |
| | 7.69 | 20.28 | 27.97 |
| | 27.50 | 72.50 | |
| | 34.38 | 26.13 | |
| Total | 32 | 111 | 143 |
| | 22.38 | 77.62 | 100.00 |

Frequency Missing = 6

TABLE OF Q27 BY Q4

Q27(27. What is your class standing)

Q4(4. How often have used mathematics?)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Never | Often | Occasionally | Total |
|---|---|---|---|---|
| Freshman | 15 | 22 | 29 | 66 |
| | 10.27 | 15.07 | 19.86 | 45.21 |
| | 22.73 | 33.33 | 43.94 | |
| | 65.22 | 37.29 | 45.31 | |
| First term senior | 5 | 18 | 17 | 40 |
| | 3.42 | 12.33 | 11.64 | 27.40 |
| | 12.50 | 45.00 | 42.50 | |
| | 21.74 | 30.51 | 26.56 | |
| Second term senior | 3 | 19 | 18 | 40 |
| | 2.05 | 13.01 | 12.33 | 27.40 |
| | 7.50 | 47.50 | 45.00 | |
| | 13.04 | 32.20 | 28.13 | |
| Total | 23 | 59 | 64 | 146 |
| | 15.75 | 40.41 | 43.84 | 100.00 |

Frequency Missing = 3

TABLE OF Q27 BY Q4AA

Q27(27. What is your class standing)  Q4AA(a. Basic arithmetic)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Very | Somewhat | Not used | Total |
|---|---|---|---|---|
| Freshman | 33 | 13 | 4 | 50 |
| | 27.05 | 10.66 | 3.28 | 40.98 |
| | 66.00 | 26.00 | 8.00 | |
| | 35.48 | 65.00 | 44.44 | |
| First term senio r | 30 | 2 | 3 | 35 |
| | 24.59 | 1.64 | 2.46 | 28.69 |
| | 85.71 | 5.71 | 8.57 | |
| | 32.26 | 10.00 | 33.33 | |
| Second term seni or | 30 | 5 | 2 | 37 |
| | 24.59 | 4.10 | 1.64 | 30.33 |
| | 81.08 | 13.51 | 5.41 | |
| | 32.26 | 25.00 | 22.22 | |
| Total | 93 | 20 | 9 | 122 |
| | 76.23 | 16.39 | 7.38 | 100.00 |

Frequency Missing = 27

TABLE OF Q27 BY Q4AB

Q27(27. What is your class standing)  Q4AB(b. Trigonometry)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Very | Somewhat | Not used | Total |
|---|---|---|---|---|
| Freshman | 2 | 14 | 34 | 50 |
| | 1.64 | 11.48 | 27.87 | 40.98 |
| | 4.00 | 28.00 | 68.00 | |
| | 11.11 | 46.67 | 45.95 | |
| First term senio r | 4 | 9 | 22 | 35 |
| | 3.28 | 7.38 | 18.03 | 28.69 |
| | 11.43 | 25.71 | 62.86 | |
| | 22.22 | 30.00 | 29.73 | |
| Second term seni or | 12 | 7 | 18 | 37 |
| | 9.84 | 5.74 | 14.75 | 30.33 |
| | 32.43 | 18.92 | 48.65 | |
| | 66.67 | 23.33 | 24.32 | |
| Total | 18 | 30 | 74 | 122 |
| | 14.75 | 24.59 | 60.66 | 100.00 |

Frequency Missing = 27

TABLE OF Q27 BY Q4AC

Q27(27. What is your class standing)  Q4AC(c. Geometry)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Very | Somewhat | Not used | Total |
|---|---|---|---|---|
| Freshman | 4 | 25 | 21 | 50 |
| | 3.28 | 20.49 | 17.21 | 40.98 |
| | 8.00 | 50.00 | 42.00 | |
| | 18.18 | 53.19 | 39.62 | |
| First term senio r | 9 | 10 | 16 | 35 |
| | 7.38 | 8.20 | 13.11 | 28.69 |
| | 25.71 | 28.57 | 45.71 | |
| | 40.91 | 21.28 | 30.19 | |
| Second term seni or | 9 | 12 | 16 | 37 |
| | 7.38 | 9.84 | 13.11 | 30.33 |
| | 24.32 | 32.43 | 43.24 | |
| | 40.91 | 25.53 | 30.19 | |
| Total | 22 | 47 | 53 | 122 |
| | 18.03 | 38.52 | 43.44 | 100.00 |

Frequency Missing = 27

TABLE OF Q27 BY Q4AD

Q27(27. What is your class standing)  Q4AD(d. Algebra)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Very | Somewhat | Not used | Total |
|---|---|---|---|---|
| Freshman | 10 | 29 | 11 | 50 |
| | 8.20 | 23.77 | 9.02 | 40.98 |
| | 20.00 | 58.00 | 22.00 | |
| | 26.32 | 47.54 | 47.83 | |
| First term senio r | 13 | 14 | 8 | 35 |
| | 10.66 | 11.48 | 6.56 | 28.69 |
| | 37.14 | 40.00 | 22.86 | |
| | 34.21 | 22.95 | 34.78 | |
| Second term seni or | 15 | 18 | 4 | 37 |
| | 12.30 | 14.75 | 3.28 | 30.33 |
| | 40.54 | 48.65 | 10.81 | |
| | 39.47 | 29.51 | 17.39 | |
| Total | 38 | 61 | 23 | 122 |
| | 31.15 | 50.00 | 18.85 | 100.00 |

Frequency Missing = 27

TABLE OF Q27 BY Q4AE

Q27(27. What is your class standing)  Q4AE(e. Statistics)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Very | Somewhat | Not used | Total |
|---|---|---|---|---|
| Freshman | 10 | 10 | 30 | 50 |
| | 8.20 | 8.20 | 24.59 | 40.98 |
| | 20.00 | 20.00 | 60.00 | |
| | 40.00 | 28.57 | 48.39 | |
| First term senio r | 6 | 11 | 18 | 35 |
| | 4.92 | 9.02 | 14.75 | 28.69 |
| | 17.14 | 31.43 | 51.43 | |
| | 24.00 | 31.43 | 29.03 | |
| Second term seni or | 9 | 14 | 14 | 37 |
| | 7.38 | 11.48 | 11.48 | 30.33 |
| | 24.32 | 37.84 | 37.84 | |
| | 36.00 | 40.00 | 22.58 | |
| Total | 25 | 35 | 62 | 122 |
| | 20.49 | 28.69 | 50.82 | 100.00 |

Frequency Missing = 27

TABLE OF Q27 BY Q5

Q27(27. What is your class standing)

Q5(5. Was learning math important?)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Important | Not important | Total |
|---|---|---|---|
| Freshman | 56 | 10 | 66 |
| | 38.89 | 6.94 | 45.83 |
| | 84.85 | 15.15 | |
| | 45.90 | 45.45 | |
| First term senior | 34 | 6 | 40 |
| | 23.61 | 4.17 | 27.78 |
| | 85.00 | 15.00 | |
| | 27.87 | 27.27 | |
| Second term senior | 32 | 6 | 38 |
| | 22.22 | 4.17 | 26.39 |
| | 84.21 | 15.79 | |
| | 26.23 | 27.27 | |
| Total | 122 | 22 | 144 |
| | 84.72 | 15.28 | 100.00 |

Frequency Missing = 5

TABLE OF Q27 BY Q6

Q27(27. What is your class standing)

Q6(6. Profs stress math as important)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes, most did | Yes, some did | No | Total |
|---|---|---|---|---|
| Freshman | 20 | 33 | 13 | 66 |
| | 13.70 | 22.60 | 8.90 | 45.21 |
| | 30.30 | 50.00 | 19.70 | |
| | 35.09 | 47.14 | 68.42 | |
| First term senior | 17 | 20 | 3 | 40 |
| | 11.64 | 13.70 | 2.05 | 27.40 |
| | 42.50 | 50.00 | 7.50 | |
| | 29.82 | 28.57 | 15.79 | |
| Second term senior | 20 | 17 | 3 | 40 |
| | 13.70 | 11.64 | 2.05 | 27.40 |
| | 50.00 | 42.50 | 7.50 | |
| | 35.09 | 24.29 | 15.79 | |
| Total | 57 | 70 | 19 | 146 |
| | 39.04 | 47.95 | 13.01 | 100.00 |

Frequency Missing = 3

TABLE OF Q27 BY Q7

Q27(27. What is your class standing)

Q7(7. Have you taken science courses?)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | No | Yes | Total |
|---|---|---|---|
| Freshman | 39 | 27 | 66 |
| | 26.53 | 18.37 | 44.90 |
| | 59.09 | 40.91 | |
| | 56.52 | 34.62 | |
| First term senio | 14 | 27 | 41 |
| r | 9.52 | 18.37 | 27.89 |
| | 34.15 | 65.85 | |
| | 20.29 | 34.62 | |
| Second term seni | 16 | 24 | 40 |
| or | 10.88 | 16.33 | 27.21 |
| | 40.00 | 60.00 | |
| | 23.19 | 30.77 | |
| Total | 69 | 78 | 147 |
| | 46.94 | 53.06 | 100.00 |

Frequency Missing = 2

TABLE OF Q27 BY Q7AA

Q27(27. What is your class standing)

Q7AA(a. General biology)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes | No | Total |
|---|---|---|---|
| Freshman | 14 | 12 | 26 |
| | 18.18 | 15.58 | 33.77 |
| | 53.85 | 46.15 | |
| | 35.00 | 32.43 | |
| First term senior | 13 | 14 | 27 |
| | 16.88 | 18.18 | 35.06 |
| | 48.15 | 51.85 | |
| | 32.50 | 37.84 | |
| Second term senior | 13 | 11 | 24 |
| | 16.88 | 14.29 | 31.17 |
| | 54.17 | 45.83 | |
| | 32.50 | 29.73 | |
| Total | 40 | 37 | 77 |
| | 51.95 | 48.05 | 100.00 |

Frequency Missing = 72

TABLE OF Q27 BY Q7AB

Q27(27. What is your class standing)

Q7AB(b. Specialized biology or zoology)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes | No | Total |
|---|---|---|---|
| Freshman | 5 | 21 | 26 |
| | 6.49 | 27.27 | 33.77 |
| | 19.23 | 80.77 | |
| | 26.32 | 36.21 | |
| First term senior | 7 | 20 | 27 |
| | 9.09 | 25.97 | 35.06 |
| | 25.93 | 74.07 | |
| | 36.84 | 34.48 | |
| Second term senior | 7 | 17 | 24 |
| | 9.09 | 22.08 | 31.17 |
| | 29.17 | 70.83 | |
| | 36.84 | 29.31 | |
| Total | 19 | 58 | 77 |
| | 24.68 | 75.32 | 100.00 |

Frequency Missing = 72

TABLE OF Q27 BY Q7AC

Q27(27. What is your class standing)
Q7AC(c. Chemistry)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes | No | Total |
|---|---|---|---|
| Freshman | 7 | 19 | 26 |
| | 9.09 | 24.68 | 33.77 |
| | 26.92 | 73.08 | |
| | 20.59 | 44.19 | |
| First term senior | 12 | 15 | 27 |
| | 15.58 | 19.48 | 35.06 |
| | 44.44 | 55.56 | |
| | 35.29 | 34.88 | |
| Second term senior | 15 | 9 | 24 |
| | 19.48 | 11.69 | 31.17 |
| | 62.50 | 37.50 | |
| | 44.12 | 20.93 | |
| Total | 34 | 43 | 77 |
| | 44.16 | 55.84 | 100.00 |

Frequency Missing = 72

TABLE OF Q27 BY Q7AD

Q27(27. What is your class standing)
Q7AD(d. Geology)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes | No | Total |
|---|---|---|---|
| Freshman | 5 | 21 | 26 |
| | 6.49 | 27.27 | 33.77 |
| | 19.23 | 80.77 | |
| | 31.25 | 34.43 | |
| First term senio r | 5 | 22 | 27 |
| | 6.49 | 28.57 | 35.06 |
| | 18.52 | 81.48 | |
| | 31.25 | 36.07 | |
| Second term seni or | 6 | 18 | 24 |
| | 7.79 | 23.38 | 31.17 |
| | 25.00 | 75.00 | |
| | 37.50 | 29.51 | |
| Total | 16 | 61 | 77 |
| | 20.78 | 79.22 | 100.00 |

Frequency Missing = 72

TABLE OF Q27 BY Q7AE

Q27(27. What is your class standing)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Q7AE(e. Other)<br>Yes | <br>No | <br>Total |
|---|---|---|---|
| Freshman | 15 | 12 | 27 |
| | 19.23 | 15.38 | 34.62 |
| | 55.56 | 44.44 | |
| | 38.46 | 30.77 | |
| First term senior | 15 | 12 | 27 |
| | 19.23 | 15.38 | 34.62 |
| | 55.56 | 44.44 | |
| | 38.46 | 30.77 | |
| Second term senior | 9 | 15 | 24 |
| | 11.54 | 19.23 | 30.77 |
| | 37.50 | 62.50 | |
| | 23.08 | 38.46 | |
| Total | 39 | 39 | 78 |
| | 50.00 | 50.00 | 100.00 |

Frequency Missing = 71

TABLE OF Q27 BY Q7B

Q27(27. What is your class standing)

Q7B(7b. Which was used most in science?)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Only lecture | Lecture and labs in an inside lab | Lecture and labs in the field | Lectue, science labs and field labs | Total |
|---|---|---|---|---|---|
| Freshman | 2 | 6 | 4 | 15 | 27 |
| | 2.60 | 7.79 | 5.19 | 19.48 | 35.06 |
| | 7.41 | 22.22 | 14.81 | 55.56 | |
| | 100.00 | 27.27 | 40.00 | 34.88 | |
| First term senior | 0 | 9 | 4 | 14 | 27 |
| | 0.00 | 11.69 | 5.19 | 18.18 | 35.06 |
| | 0.00 | 33.33 | 14.81 | 51.85 | |
| | 0.00 | 40.91 | 40.00 | 32.56 | |
| Second term senior | 0 | 7 | 2 | 14 | 23 |
| | 0.00 | 9.09 | 2.60 | 18.18 | 29.87 |
| | 0.00 | 30.43 | 8.70 | 60.87 | |
| | 0.00 | 31.82 | 20.00 | 32.56 | |
| Total | 2 | 22 | 10 | 43 | 77 |
| | 2.60 | 28.57 | 12.99 | 55.84 | 100.00 |

Frequency Missing = 72

TABLE OF Q27 BY Q7C

Q27(27. What is your class standing)

Q7C(7c. How often did use science techniques)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Often | Occasionally | Total |
|---|---|---|---|
| Freshman | 15 | 12 | 27 |
| | 19.23 | 15.38 | 34.62 |
| | 55.56 | 44.44 | |
| | 41.67 | 28.57 | |
| First term senior | 12 | 15 | 27 |
| | 15.38 | 19.23 | 34.62 |
| | 44.44 | 55.56 | |
| | 33.33 | 35.71 | |
| Second term senior | 9 | 15 | 24 |
| | 11.54 | 19.23 | 30.77 |
| | 37.50 | 62.50 | |
| | 25.00 | 35.71 | |
| Total | 36 | 42 | 78 |
| | 46.15 | 53.85 | 100.00 |

Frequency Missing = 71

TABLE OF Q27 BY Q8

Q27(27. What is your class standing)

Q8(8. How important is science?)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Important | Unimportant | Total |
|---|---|---|---|
| Freshman | 61 | 4 | 65 |
| | 42.66 | 2.80 | 45.45 |
| | 93.85 | 6.15 | |
| | 48.41 | 23.53 | |
| First term senior | 35 | 5 | 40 |
| | 24.48 | 3.50 | 27.97 |
| | 87.50 | 12.50 | |
| | 27.78 | 29.41 | |
| Second term senior | 30 | 8 | 38 |
| | 20.98 | 5.59 | 26.57 |
| | 78.95 | 21.05 | |
| | 23.81 | 47.06 | |
| Total | 126 | 17 | 143 |
| | 88.11 | 11.89 | 100.00 |

Frequency Missing = 6

TABLE OF Q27 BY Q9

Q27(27. What is your class standing)
Q9(9. Profs stress science as important)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes, most did | Yes, some did | No | Total |
|---|---|---|---|---|
| Freshman | 30 | 24 | 11 | 65 |
| | 20.83 | 16.67 | 7.64 | 45.14 |
| | 46.15 | 36.92 | 16.92 | |
| | 46.88 | 44.44 | 42.31 | |
| First term senior | 20 | 16 | 4 | 40 |
| | 13.89 | 11.11 | 2.78 | 27.78 |
| | 50.00 | 40.00 | 10.00 | |
| | 31.25 | 29.63 | 15.38 | |
| Second term senior | 14 | 14 | 11 | 39 |
| | 9.72 | 9.72 | 7.64 | 27.08 |
| | 35.90 | 35.90 | 28.21 | |
| | 21.88 | 25.93 | 42.31 | |
| Total | 64 | 54 | 26 | 144 |
| | 44.44 | 37.50 | 18.06 | 100.00 |

Frequency Missing = 5

TABLE OF Q27 BY Q10

Q27(27. What is your class standing)

Q10(10. Have you taken ecosystem science?)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes | No | Total |
|---|---|---|---|
| Freshman | 28 | 38 | 66 |
| | 19.44 | 26.39 | 45.83 |
| | 42.42 | 57.58 | |
| | 35.00 | 59.38 | |
| First term senio r | 29 | 11 | 40 |
| | 20.14 | 7.64 | 27.78 |
| | 72.50 | 27.50 | |
| | 36.25 | 17.19 | |
| Second term seni or | 23 | 15 | 38 |
| | 15.97 | 10.42 | 26.39 |
| | 60.53 | 39.47 | |
| | 28.75 | 23.44 | |
| Total | 80 | 64 | 144 |
| | 55.56 | 44.44 | 100.00 |

Frequency Missing = 5

TABLE OF Q27 BY Q11

Q27(27. What is your class standing)

Q11(11. Were concepts of ecosystem taught?)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes | No | Total |
|---|---|---|---|
| Freshman | 42 | 22 | 64 |
| | 29.79 | 15.60 | 45.39 |
| | 65.63 | 34.38 | |
| | 40.78 | 57.89 | |
| First term senio r | 35 | 4 | 39 |
| | 24.82 | 2.84 | 27.66 |
| | 89.74 | 10.26 | |
| | 33.98 | 10.53 | |
| Second term seni or | 26 | 12 | 38 |
| | 18.44 | 8.51 | 26.95 |
| | 68.42 | 31.58 | |
| | 25.24 | 31.58 | |
| Total | 103 | 38 | 141 |
| | 73.05 | 26.95 | 100.00 |

Frequency Missing = 8

TABLE OF Q27 BY Q12

Q27(27. What is your class standing)

Q12(12. Profs stress importance of ecosystem)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes, most did | Yes, some did | No | Total |
|---|---|---|---|---|
| Freshman | 31 | 25 | 8 | 64 |
| | 22.14 | 17.86 | 5.71 | 45.71 |
| | 48.44 | 39.06 | 12.50 | |
| | 39.74 | 55.56 | 47.06 | |
| First term senior | 28 | 11 | 0 | 39 |
| | 20.00 | 7.86 | 0.00 | 27.86 |
| | 71.79 | 28.21 | 0.00 | |
| | 35.90 | 24.44 | 0.00 | |
| Second term senior | 19 | 9 | 9 | 37 |
| | 13.57 | 6.43 | 6.43 | 26.43 |
| | 51.35 | 24.32 | 24.32 | |
| | 24.36 | 20.00 | 52.94 | |
| Total | 78 | 45 | 17 | 140 |
| | 55.71 | 32.14 | 12.14 | 100.00 |

Frequency Missing = 9

TABLE OF Q27 BY Q13

Q27(27. What is your class standing)

Q13(13. Do you understand ecosystems?)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes | No | Total |
|---|---|---|---|
| Freshman | 53 | 11 | 64 |
| | 38.13 | 7.91 | 46.04 |
| | 82.81 | 17.19 | |
| | 44.17 | 57.89 | |
| First term senio r | 36 | 3 | 39 |
| | 25.90 | 2.16 | 28.06 |
| | 92.31 | 7.69 | |
| | 30.00 | 15.79 | |
| Second term seni or | 31 | 5 | 36 |
| | 22.30 | 3.60 | 25.90 |
| | 86.11 | 13.89 | |
| | 25.83 | 26.32 | |
| Total | 120 | 19 | 139 |
| | 86.33 | 13.67 | 100.00 |

Frequency Missing = 10

TABLE OF Q27 BY Q14

Q27(27. What is your class standing)

Q14(14. Understanding of ecological successi)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Plant and animal community change | Energy flow through ecosystems | Interrelationships between living and non-living | Abundance of plant and animal communities | Total |
|---|---|---|---|---|---|
| Freshman | 29 | 0 | 27 | 4 | 60 |
| | 22.14 | 0.00 | 20.61 | 3.05 | 45.80 |
| | 48.33 | 0.00 | 45.00 | 6.67 | |
| | 46.03 | 0.00 | 49.09 | 57.14 | |
| First term senior | 16 | 4 | 15 | 2 | 37 |
| | 12.21 | 3.05 | 11.45 | 1.53 | 28.24 |
| | 43.24 | 10.81 | 40.54 | 5.41 | |
| | 25.40 | 66.67 | 27.27 | 28.57 | |
| Second term senior | 18 | 2 | 13 | 1 | 34 |
| | 13.74 | 1.53 | 9.92 | 0.76 | 25.95 |
| | 52.94 | 5.88 | 38.24 | 2.94 | |
| | 28.57 | 33.33 | 23.64 | 14.29 | |
| Total | 63 | 6 | 55 | 7 | 131 |
| | 48.09 | 4.58 | 41.98 | 5.34 | 100.00 |

Frequency Missing = 18

TABLE OF Q27 BY Q15

Q27(27. What is your class standing)  Q15(15. Food web describe which?)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Production and accumulation of carbohydrates | Energy flow through an ecosystem | Plant and animal community change | Population growth in an ecosystem | Total |
|---|---|---|---|---|---|
| Freshman | 12 | 31 | 5 | 14 | 62 |
| | 9.16 | 23.66 | 3.82 | 10.69 | 47.33 |
| | 19.35 | 50.00 | 8.06 | 22.58 | |
| | 54.55 | 41.33 | 35.71 | 70.00 | |
| First term senior | 7 | 22 | 7 | 2 | 38 |
| | 5.34 | 16.79 | 5.34 | 1.53 | 29.01 |
| | 18.42 | 57.89 | 18.42 | 5.26 | |
| | 31.82 | 29.33 | 50.00 | 10.00 | |
| Second term senior | 3 | 22 | 2 | 4 | 31 |
| | 2.29 | 16.79 | 1.53 | 3.05 | 23.66 |
| | 9.68 | 70.97 | 6.45 | 12.90 | |
| | 13.64 | 29.33 | 14.29 | 20.00 | |
| Total | 22 | 75 | 14 | 20 | 131 |
| | 16.79 | 57.25 | 10.69 | 15.27 | 100.00 |

Frequency Missing = 18

TABLE OF Q27 BY Q16

Q27(27. What is your class standing) Q16(16. Diff between community & ecosystem)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Plants | Animals | Bacteria | Humans | The physical environment | Total |
|---|---|---|---|---|---|---|
| Freshman | 11 | 9 | 11 | 4 | 27 | 62 |
| | 8.27 | 6.77 | 8.27 | 3.01 | 20.30 | 46.62 |
| | 17.74 | 14.52 | 17.74 | 6.45 | 43.55 | |
| | 68.75 | 90.00 | 50.00 | 50.00 | 35.06 | |
| First term senior | 2 | 1 | 5 | 3 | 27 | 38 |
| | 1.50 | 0.75 | 3.76 | 2.26 | 20.30 | 28.57 |
| | 5.26 | 2.63 | 13.16 | 7.89 | 71.05 | |
| | 12.50 | 10.00 | 22.73 | 37.50 | 35.06 | |
| Second term senior | 3 | 0 | 6 | 1 | 23 | 33 |
| | 2.26 | 0.00 | 4.51 | 0.75 | 17.29 | 24.81 |
| | 9.09 | 0.00 | 18.18 | 3.03 | 69.70 | |
| | 18.75 | 0.00 | 27.27 | 12.50 | 29.87 | |
| Total | 16 | 10 | 22 | 8 | 77 | 133 |
| | 12.03 | 7.52 | 16.54 | 6.02 | 57.89 | 100.00 |

Frequency Missing = 16

TABLE OF Q27 BY Q17

Q27(27. What is your class standing)  Q17(17. Trees have the ability to)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Shade soils | Convert Carbon dioxide into carbohydrates | Store large quaantities of water | Provide wildlife habitat | Produce oxygen | Total |
|---|---|---|---|---|---|---|
| Freshman | 3 | 13 | 1 | 4 | 42 | 63 |
| | 2.14 | 9.29 | 0.71 | 2.86 | 30.00 | 45.00 |
| | 4.76 | 20.63 | 1.59 | 6.35 | 66.67 | |
| | 42.86 | 46.43 | 33.33 | 57.14 | 44.21 | |
| First term senior | 4 | 4 | 1 | 2 | 29 | 40 |
| | 2.86 | 2.86 | 0.71 | 1.43 | 20.71 | 28.57 |
| | 10.00 | 10.00 | 2.50 | 5.00 | 72.50 | |
| | 57.14 | 14.29 | 33.33 | 28.57 | 30.53 | |
| Second term senior | 0 | 11 | 1 | 1 | 24 | 37 |
| | 0.00 | 7.86 | 0.71 | 0.71 | 17.14 | 26.43 |
| | 0.00 | 29.73 | 2.70 | 2.70 | 64.86 | |
| | 0.00 | 39.29 | 33.33 | 14.29 | 25.26 | |
| Total | 7 | 28 | 3 | 7 | 95 | 140 |
| | 5.00 | 20.00 | 2.14 | 5.00 | 67.86 | 100.00 |

Frequency Missing = 9

TABLE OF Q27 BY Q18

Q27(27. What is your class standing)

Q18(18. Which decreases as succesion proceed)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Soil depth | Humidity | Animal diversity | Soil temperature | Total |
|---|---|---|---|---|---|
| Freshman | 12 | 6 | 30 | 10 | 58 |
| | 9.68 | 4.84 | 24.19 | 8.06 | 46.77 |
| | 20.69 | 10.34 | 51.72 | 17.24 | |
| | 46.15 | 85.71 | 47.62 | 35.71 | |
| First term senior | 9 | 1 | 20 | 6 | 36 |
| | 7.26 | 0.81 | 16.13 | 4.84 | 29.03 |
| | 25.00 | 2.78 | 55.56 | 16.67 | |
| | 34.62 | 14.29 | 31.75 | 21.43 | |
| Second term senior | 5 | 0 | 13 | 12 | 30 |
| | 4.03 | 0.00 | 10.48 | 9.68 | 24.19 |
| | 16.67 | 0.00 | 43.33 | 40.00 | |
| | 19.23 | 0.00 | 20.63 | 42.86 | |
| Total | 26 | 7 | 63 | 28 | 124 |
| | 20.97 | 5.65 | 50.81 | 22.58 | 100.00 |

Frequency Missing = 25

TABLE OF Q27 BY Q19

Q27(27. What is your class standing)

Q19(19. Least likely part of forest manageme)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Maintain decomposition and nitrogen fixation | Involve society in decision making | Use modern imaging techniques | Plant a monculture of douglas fir | Consider downstream effects | Total |
|---|---|---|---|---|---|---|
| Freshman | 3 | 8 | 25 | 20 | 4 | 60 |
| | 2.33 | 6.20 | 19.38 | 15.50 | 3.10 | 46.51 |
| | 5.00 | 13.33 | 41.67 | 33.33 | 6.67 | |
| | 50.00 | 33.33 | 75.76 | 32.79 | 80.00 | |
| First term senior | 2 | 6 | 4 | 24 | 1 | 37 |
| | 1.55 | 4.65 | 3.10 | 18.60 | 0.78 | 28.68 |
| | 5.41 | 16.22 | 10.81 | 64.86 | 2.70 | |
| | 33.33 | 25.00 | 12.12 | 39.34 | 20.00 | |
| Second term senior | 1 | 10 | 4 | 17 | 0 | 32 |
| | 0.78 | 7.75 | 3.10 | 13.18 | 0.00 | 24.81 |
| | 3.13 | 31.25 | 12.50 | 53.13 | 0.00 | |
| | 16.67 | 41.67 | 12.12 | 27.87 | 0.00 | |
| Total | 6 | 24 | 33 | 61 | 5 | 129 |
| | 4.65 | 18.60 | 25.58 | 47.29 | 3.88 | 100.00 |

Frequency Missing = 20

TABLE OF Q27 BY Q20

Q27(27. What is your class standing)

| | Q20(20. Have you taken a GIS course?) | | |
|---|---|---|---|
| Frequency<br>Percent<br>Row Pct<br>Col Pct | No | Yes | Total |
| Freshman | 65<br>44.22<br>98.48<br>57.02 | 1<br>0.68<br>1.52<br>3.03 | 66<br>44.90 |
| First term senior | 29<br>19.73<br>70.73<br>25.44 | 12<br>8.16<br>29.27<br>36.36 | 41<br>27.89 |
| Second term senior | 20<br>13.61<br>50.00<br>17.54 | 20<br>13.61<br>50.00<br>60.61 | 40<br>27.21 |
| Total | 114<br>77.55 | 33<br>22.45 | 147<br>100.00 |

Frequency Missing = 2

TABLE OF Q27 BY Q20A

Q27(27. What is your class standing)
Q20A(20a. How often did you use GIS?)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Often | Occasionally | Never | Total |
|---|---|---|---|---|
| Freshman | 0 | 1 | 0 | 1 |
| | 0.00 | 3.03 | 0.00 | 3.03 |
| | 0.00 | 100.00 | 0.00 | |
| | 0.00 | 7.14 | 0.00 | |
| First term senior | 5 | 7 | 0 | 12 |
| | 15.15 | 21.21 | 0.00 | 36.36 |
| | 41.67 | 58.33 | 0.00 | |
| | 27.78 | 50.00 | 0.00 | |
| Second term senior | 13 | 6 | 1 | 20 |
| | 39.39 | 18.18 | 3.03 | 60.61 |
| | 65.00 | 30.00 | 5.00 | |
| | 72.22 | 42.86 | 100.00 | |
| Total | 18 | 14 | 1 | 33 |
| | 54.55 | 42.42 | 3.03 | 100.00 |

Frequency Missing = 116

TABLE OF Q27 BY Q20B

Q27(27. What is your class standing)

Q20B(20b. Was learning GIS important?)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Important | Unimportant | Total |
|---|---|---|---|
| Freshman | 1 | 0 | 1 |
| | 3.03 | 0.00 | 3.03 |
| | 100.00 | 0.00 | |
| | 3.13 | 0.00 | |
| First term senior | 12 | 0 | 12 |
| | 36.36 | 0.00 | 36.36 |
| | 100.00 | 0.00 | |
| | 37.50 | 0.00 | |
| Second term senior | 19 | 1 | 20 |
| | 57.58 | 3.03 | 60.61 |
| | 95.00 | 5.00 | |
| | 59.38 | 100.00 | |
| Total | 32 | 1 | 33 |
| | 96.97 | 3.03 | 100.00 |

Frequency Missing = 116

TABLE OF Q27 BY Q20C

Q27(27. What is your class standing)

Q20C(20c. Profs stress GIS as important)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes, most did | Yes, some did | No | Total |
|---|---|---|---|---|
| Freshman | 1 | 0 | 0 | 1 |
| | 3.03 | 0.00 | 0.00 | 3.03 |
| | 100.00 | 0.00 | 0.00 | |
| | 4.00 | 0.00 | 0.00 | |
| First term senior | 9 | 3 | 0 | 12 |
| | 27.27 | 9.09 | 0.00 | 36.36 |
| | 75.00 | 25.00 | 0.00 | |
| | 36.00 | 42.86 | 0.00 | |
| Second term senior | 15 | 4 | 1 | 20 |
| | 45.45 | 12.12 | 3.03 | 60.61 |
| | 75.00 | 20.00 | 5.00 | |
| | 60.00 | 57.14 | 100.00 | |
| Total | 25 | 7 | 1 | 33 |
| | 75.76 | 21.21 | 3.03 | 100.00 |

Frequency Missing = 116

TABLE OF Q27 BY Q21

Q27(27. What is your class standing)

Q21(21. Have taken part in job education)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | No | Yes | Total |
|---|---|---|---|
| Freshman | 48 | 18 | 66 |
| | 32.65 | 12.24 | 44.90 |
| | 72.73 | 27.27 | |
| | 55.17 | 30.00 | |
| First term senio r | 24 | 17 | 41 |
| | 16.33 | 11.56 | 27.89 |
| | 58.54 | 41.46 | |
| | 27.59 | 28.33 | |
| Second term seni or | 15 | 25 | 40 |
| | 10.20 | 17.01 | 27.21 |
| | 37.50 | 62.50 | |
| | 17.24 | 41.67 | |
| Total | 87 | 60 | 147 |
| | 59.18 | 40.82 | 100.00 |

Frequency Missing = 2

TABLE OF Q27 BY Q21A

Q27(27. What is your class standing)
Q21A(21a. How important was work experience?)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Very importan | Somewhat importan | Not importan | Total |
|---|---|---|---|---|
| Freshman | 15 | 2 | 1 | 18 |
| | 25.00 | 3.33 | 1.67 | 30.00 |
| | 83.33 | 11.11 | 5.56 | |
| | 31.25 | 18.18 | 100.00 | |
| First term senio r | 13 | 4 | 0 | 17 |
| | 21.67 | 6.67 | 0.00 | 28.33 |
| | 76.47 | 23.53 | 0.00 | |
| | 27.08 | 36.36 | 0.00 | |
| Second term seni or | 20 | 5 | 0 | 25 |
| | 33.33 | 8.33 | 0.00 | 41.67 |
| | 80.00 | 20.00 | 0.00 | |
| | 41.67 | 45.45 | 0.00 | |
| Total | 48 | 11 | 1 | 60 |
| | 80.00 | 18.33 | 1.67 | 100.00 |

Frequency Missing = 89

TABLE OF Q27 BY Q21B

Q27(27. What is your class standing)
Q21B(21b. Did work involve technical skills?)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes | No | Total |
|---|---|---|---|
| Freshman | 15 | 3 | 18 |
| | 25.00 | 5.00 | 30.00 |
| | 83.33 | 16.67 | |
| | 27.78 | 50.00 | |
| First term senior | 16 | 1 | 17 |
| | 26.67 | 1.67 | 28.33 |
| | 94.12 | 5.88 | |
| | 29.63 | 16.67 | |
| Second term senior | 23 | 2 | 25 |
| | 38.33 | 3.33 | 41.67 |
| | 92.00 | 8.00 | |
| | 42.59 | 33.33 | |
| Total | 54 | 6 | 60 |
| | 90.00 | 10.00 | 100.00 |

Frequency Missing = 89

TABLE OF Q27 BY Q21CA

Q27(27. What is your class standing)  Q21CA(a. Mathematics courses)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Often | Sometimes | Never | Have not taken | Total |
|---|---|---|---|---|---|
| Freshman | 5 | 8 | 1 | 3 | 17 |
| | 8.47 | 13.56 | 1.69 | 5.08 | 28.81 |
| | 29.41 | 47.06 | 5.88 | 17.65 | |
| | 22.73 | 29.63 | 14.29 | 100.00 | |
| First term senior | 7 | 6 | 4 | 0 | 17 |
| | 11.86 | 10.17 | 6.78 | 0.00 | 28.81 |
| | 41.18 | 35.29 | 23.53 | 0.00 | |
| | 31.82 | 22.22 | 57.14 | 0.00 | |
| Second term senior | 10 | 13 | 2 | 0 | 25 |
| | 16.95 | 22.03 | 3.39 | 0.00 | 42.37 |
| | 40.00 | 52.00 | 8.00 | 0.00 | |
| | 45.45 | 48.15 | 28.57 | 0.00 | |
| Total | 22 | 27 | 7 | 3 | 59 |
| | 37.29 | 45.76 | 11.86 | 5.08 | 100.00 |

Frequency Missing = 90

TABLE OF Q27 BY Q21CB

Q27(27. What is your class standing)  Q21CB(b. Science courses)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Often | Sometimes | Never | Have not taken | Total |
|---|---|---|---|---|---|
| Freshman | 7 | 3 | 1 | 6 | 17 |
| | 12.07 | 5.17 | 1.72 | 10.34 | 29.31 |
| | 41.18 | 17.65 | 5.88 | 35.29 | |
| | 36.84 | 13.64 | 14.29 | 60.00 | |
| First term senior | 7 | 7 | 2 | 1 | 17 |
| | 12.07 | 12.07 | 3.45 | 1.72 | 29.31 |
| | 41.18 | 41.18 | 11.76 | 5.88 | |
| | 36.84 | 31.82 | 28.57 | 10.00 | |
| Second term senior | 5 | 12 | 4 | 3 | 24 |
| | 8.62 | 20.69 | 6.90 | 5.17 | 41.38 |
| | 20.83 | 50.00 | 16.67 | 12.50 | |
| | 26.32 | 54.55 | 57.14 | 30.00 | |
| Total | 19 | 22 | 7 | 10 | 58 |
| | 32.76 | 37.93 | 12.07 | 17.24 | 100.00 |

Frequency Missing = 91

TABLE OF Q27 BY Q21CC

Q27(27. What is your class standing)  Q21CC(c. GIS courses)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Often | Sometimes | Never | Have not taken | Total |
|---|---|---|---|---|---|
| Freshman | 0 | 0 | 2 | 13 | 15 |
| | 0.00 | 0.00 | 3.57 | 23.21 | 26.79 |
| | 0.00 | 0.00 | 13.33 | 86.67 | |
| | 0.00 | 0.00 | 18.18 | 52.00 | |
| First term senior | 2 | 5 | 4 | 5 | 16 |
| | 3.57 | 8.93 | 7.14 | 8.93 | 28.57 |
| | 12.50 | 31.25 | 25.00 | 31.25 | |
| | 20.00 | 50.00 | 36.36 | 20.00 | |
| Second term senior | 8 | 5 | 5 | 7 | 25 |
| | 14.29 | 8.93 | 8.93 | 12.50 | 44.64 |
| | 32.00 | 20.00 | 20.00 | 28.00 | |
| | 80.00 | 50.00 | 45.45 | 28.00 | |
| Total | 10 | 10 | 11 | 25 | 56 |
| | 17.86 | 17.86 | 19.64 | 44.64 | 100.00 |

Frequency Missing = 93

TABLE OF Q27 BY Q21CD

Q27(27. What is your class standing)
Q21CD(d. Communications)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Often | Sometimes | Never | Total |
|---|---|---|---|---|
| Freshman | 12<br>20.34<br>70.59<br>30.00 | 4<br>6.78<br>23.53<br>28.57 | 1<br>1.69<br>5.88<br>20.00 | 17<br>28.81 |
| First term senior | 12<br>20.34<br>70.59<br>30.00 | 4<br>6.78<br>23.53<br>28.57 | 1<br>1.69<br>5.88<br>20.00 | 17<br>28.81 |
| Second term senior | 16<br>27.12<br>64.00<br>40.00 | 6<br>10.17<br>24.00<br>42.86 | 3<br>5.08<br>12.00<br>60.00 | 25<br>42.37 |
| Total | 40<br>67.80 | 14<br>23.73 | 5<br>8.47 | 59<br>100.00 |

Frequency Missing = 90

TABLE OF Q27 BY Q22

Q27(27. What is your class standing)

Q22(22. Rating of acedemic level)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Very difficult and required special effort | Challenging but within my abilities | Fairly easy and required minimal effort | Total |
|---|---|---|---|---|
| Freshman | 8 | 52 | 5 | 65 |
| | 5.59 | 36.36 | 3.50 | 45.45 |
| | 12.31 | 80.00 | 7.69 | |
| | 47.06 | 44.83 | 50.00 | |
| First term senior | 2 | 32 | 4 | 38 |
| | 1.40 | 22.38 | 2.80 | 26.57 |
| | 5.26 | 84.21 | 10.53 | |
| | 11.76 | 27.59 | 40.00 | |
| Second term senior | 7 | 32 | 1 | 40 |
| | 4.90 | 22.38 | 0.70 | 27.97 |
| | 17.50 | 80.00 | 2.50 | |
| | 41.18 | 27.59 | 10.00 | |
| Total | 17 | 116 | 10 | 143 |
| | 11.89 | 81.12 | 6.99 | 100.00 |

Frequency Missing = 6

TABLE OF Q27 BY Q23

Q27(27. What is your class standing)

Q23(23. Overall results of education)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Taught me essential knowlege | Important knowlege but unimportant parts | Important knowlege but not essential | Other | Total |
|---|---|---|---|---|---|
| Freshman | 41 | 18 | 3 | 4 | 66 |
| | 28.28 | 12.41 | 2.07 | 2.76 | 45.52 |
| | 62.12 | 27.27 | 4.55 | 6.06 | |
| | 44.09 | 46.15 | 42.86 | 66.67 | |
| First term senior | 29 | 9 | 1 | 0 | 39 |
| | 20.00 | 6.21 | 0.69 | 0.00 | 26.90 |
| | 74.36 | 23.08 | 2.56 | 0.00 | |
| | 31.18 | 23.08 | 14.29 | 0.00 | |
| Second term senior | 23 | 12 | 3 | 2 | 40 |
| | 15.86 | 8.28 | 2.07 | 1.38 | 27.59 |
| | 57.50 | 30.00 | 7.50 | 5.00 | |
| | 24.73 | 30.77 | 42.86 | 33.33 | |
| Total | 93 | 39 | 7 | 6 | 145 |
| | 64.14 | 26.90 | 4.83 | 4.14 | 100.00 |

Frequency Missing = 4

TABLE OF Q27 BY Q24

Q27(27. What is your class standing)

Q24(24. Do you have an advisor?)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | No | Yes | Total |
|---|---|---|---|
| Freshman | 26 | 40 | 66 |
| | 17.69 | 27.21 | 44.90 |
| | 39.39 | 60.61 | |
| | 57.78 | 39.22 | |
| First term senio r | 8 | 33 | 41 |
| | 5.44 | 22.45 | 27.89 |
| | 19.51 | 80.49 | |
| | 17.78 | 32.35 | |
| Second term seni or | 11 | 29 | 40 |
| | 7.48 | 19.73 | 27.21 |
| | 27.50 | 72.50 | |
| | 24.44 | 28.43 | |
| Total | 45 | 102 | 147 |
| | 30.61 | 69.39 | 100.00 |

Frequency Missing = 2

TABLE OF Q27 BY Q24A

Q27(27. What is your class standing)

Q24A(24a. How do you meet advisor?)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | At least once a month | One or two times a term | Never | Total |
|---|---|---|---|---|
| Freshman | 12 | 21 | 7 | 40 |
| | 11.88 | 20.79 | 6.93 | 39.60 |
| | 30.00 | 52.50 | 17.50 | |
| | 41.38 | 35.00 | 58.33 | |
| First term senior | 11 | 19 | 2 | 32 |
| | 10.89 | 18.81 | 1.98 | 31.68 |
| | 34.38 | 59.38 | 6.25 | |
| | 37.93 | 31.67 | 16.67 | |
| Second term senior | 6 | 20 | 3 | 29 |
| | 5.94 | 19.80 | 2.97 | 28.71 |
| | 20.69 | 68.97 | 10.34 | |
| | 20.69 | 33.33 | 25.00 | |
| Total | 29 | 60 | 12 | 101 |
| | 28.71 | 59.41 | 11.88 | 100.00 |

Frequency Missing = 48

TABLE OF Q27 BY Q24B

Q27(27. What is your class standing)

Q24B(24b. Has advisor discussed job market?)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes | No | Total |
|---|---|---|---|
| Freshman | 25 | 14 | 39 |
| | 24.75 | 13.86 | 38.61 |
| | 64.10 | 35.90 | |
| | 36.76 | 42.42 | |
| First term senio | 25 | 8 | 33 |
| r | 24.75 | 7.92 | 32.67 |
| | 75.76 | 24.24 | |
| | 36.76 | 24.24 | |
| Second term seni | 18 | 11 | 29 |
| or | 17.82 | 10.89 | 28.71 |
| | 62.07 | 37.93 | |
| | 26.47 | 33.33 | |
| Total | 68 | 33 | 101 |
| | 67.33 | 32.67 | 100.00 |

Frequency Missing = 48

TABLE OF Q27 BY Q25

Q27(27. What is your class standing)
Q25(25. Was sequence clearly explained?)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes | No | Total |
|---|---|---|---|
| Freshman | 36 | 29 | 65 |
| | 25.17 | 20.28 | 45.45 |
| | 55.38 | 44.62 | |
| | 40.91 | 52.73 | |
| First term senio r | 28 | 11 | 39 |
| | 19.58 | 7.69 | 27.27 |
| | 71.79 | 28.21 | |
| | 31.82 | 20.00 | |
| Second term seni or | 24 | 15 | 39 |
| | 16.78 | 10.49 | 27.27 |
| | 61.54 | 38.46 | |
| | 27.27 | 27.27 | |
| Total | 88 | 55 | 143 |
| | 61.54 | 38.46 | 100.00 |

Frequency Missing = 6

TABLE OF Q27 BY Q26

Q27(27. What is your class standing)

Q26(26. Have taken reccomended sequence)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes, most courses | Yes, some courses | No. not following the sequence | I am not sure | Total |
|---|---|---|---|---|---|
| Freshman | 21 | 20 | 5 | 19 | 65 |
| | 14.38 | 13.70 | 3.42 | 13.01 | 44.52 |
| | 32.31 | 30.77 | 7.69 | 29.23 | |
| | 40.38 | 37.74 | 27.78 | 82.61 | |
| First term senior | 14 | 18 | 7 | 2 | 41 |
| | 9.59 | 12.33 | 4.79 | 1.37 | 28.08 |
| | 34.15 | 43.90 | 17.07 | 4.88 | |
| | 26.92 | 33.96 | 38.89 | 8.70 | |
| Second term senior | 17 | 15 | 6 | 2 | 40 |
| | 11.64 | 10.27 | 4.11 | 1.37 | 27.40 |
| | 42.50 | 37.50 | 15.00 | 5.00 | |
| | 32.69 | 28.30 | 33.33 | 8.70 | |
| Total | 52 | 53 | 18 | 23 | 146 |
| | 35.62 | 36.30 | 12.33 | 15.75 | 100.00 |

Frequency Missing = 3

TABLE OF Q27 BY Q28

Q27(27. What is your class standing)  Q28(28. Mathematics in high school)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Elementery algebra | Intermediate algebra | Advanced mathematics | Other | Total |
|---|---|---|---|---|---|
| Freshman | 13 | 27 | 12 | 12 | 64 |
| | 9.15 | 19.01 | 8.45 | 8.45 | 45.07 |
| | 20.31 | 42.19 | 18.75 | 18.75 | |
| | 37.14 | 45.00 | 46.15 | 57.14 | |
| First term senior | 7 | 19 | 7 | 6 | 39 |
| | 4.93 | 13.38 | 4.93 | 4.23 | 27.46 |
| | 17.95 | 48.72 | 17.95 | 15.38 | |
| | 20.00 | 31.67 | 26.92 | 28.57 | |
| Second term senior | 15 | 14 | 7 | 3 | 39 |
| | 10.56 | 9.86 | 4.93 | 2.11 | 27.46 |
| | 38.46 | 35.90 | 17.95 | 7.69 | |
| | 42.86 | 23.33 | 26.92 | 14.29 | |
| Total | 35 | 60 | 26 | 21 | 142 |
| | 24.65 | 42.25 | 18.31 | 14.79 | 100.00 |

Frequency Missing = 7

TABLE OF Q27 BY Q29A

Q27(27. What is your class standing)

| | Q29A(a. General science) | | |
|---|---|---|---|
| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes | No | Total |
| Freshman | 57 | 9 | 66 |
| | 39.31 | 6.21 | 45.52 |
| | 86.36 | 13.64 | |
| | 44.88 | 50.00 | |
| First term senio r | 31 | 9 | 40 |
| | 21.38 | 6.21 | 27.59 |
| | 77.50 | 22.50 | |
| | 24.41 | 50.00 | |
| Second term seni or | 39 | 0 | 39 |
| | 26.90 | 0.00 | 26.90 |
| | 100.00 | 0.00 | |
| | 30.71 | 0.00 | |
| Total | 127 | 18 | 145 |
| | 87.59 | 12.41 | 100.00 |

Frequency Missing = 4

TABLE OF Q27 BY Q29B

Q27(27. What is your class standing)
Q29B(b. Biology)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes | No | Total |
|---|---|---|---|
| Freshman | 43 | 23 | 66 |
| | 29.66 | 15.86 | 45.52 |
| | 65.15 | 34.85 | |
| | 46.24 | 44.23 | |
| First term senio | 26 | 14 | 40 |
| r | 17.93 | 9.66 | 27.59 |
| | 65.00 | 35.00 | |
| | 27.96 | 26.92 | |
| Second term seni | 24 | 15 | 39 |
| or | 16.55 | 10.34 | 26.90 |
| | 61.54 | 38.46 | |
| | 25.81 | 28.85 | |
| Total | 93 | 52 | 145 |
| | 64.14 | 35.86 | 100.00 |

Frequency Missing = 4

TABLE OF Q27 BY Q29C

Q27(27. What is your class standing)
Q29C(c. Chemistry)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes | No | Total |
|---|---|---|---|
| Freshman | 24 | 42 | 66 |
| | 16.55 | 28.97 | 45.52 |
| | 36.36 | 63.64 | |
| | 44.44 | 46.15 | |
| First term senio r | 13 | 27 | 40 |
| | 8.97 | 18.62 | 27.59 |
| | 32.50 | 67.50 | |
| | 24.07 | 29.67 | |
| Second term seni or | 17 | 22 | 39 |
| | 11.72 | 15.17 | 26.90 |
| | 43.59 | 56.41 | |
| | 31.48 | 24.18 | |
| Total | 54 | 91 | 145 |
| | 37.24 | 62.76 | 100.00 |

Frequency Missing = 4

TABLE OF Q27 BY Q29D

Q27(27. What is your class standing)
Q29D(d. Physics)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes | No | Total |
|---|---|---|---|
| Freshman | 8 | 58 | 66 |
| | 5.52 | 40.00 | 45.52 |
| | 12.12 | 87.88 | |
| | 34.78 | 47.54 | |
| First term senio | 5 | 35 | 40 |
| r | 3.45 | 24.14 | 27.59 |
| | 12.50 | 87.50 | |
| | 21.74 | 28.69 | |
| Second term seni | 10 | 29 | 39 |
| or | 6.90 | 20.00 | 26.90 |
| | 25.64 | 74.36 | |
| | 43.48 | 23.77 | |
| Total | 23 | 122 | 145 |
| | 15.86 | 84.14 | 100.00 |

Frequency Missing = 4

TABLE OF Q27 BY Q29E

Q27(27. What is your class standing)

Q29E(e. Environmental Science)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes | No | Total |
|---|---|---|---|
| Freshman | 30 | 36 | 66 |
| | 20.69 | 24.83 | 45.52 |
| | 45.45 | 54.55 | |
| | 47.62 | 43.90 | |
| First term senio r | 20 | 20 | 40 |
| | 13.79 | 13.79 | 27.59 |
| | 50.00 | 50.00 | |
| | 31.75 | 24.39 | |
| Second term seni or | 13 | 26 | 39 |
| | 8.97 | 17.93 | 26.90 |
| | 33.33 | 66.67 | |
| | 20.63 | 31.71 | |
| Total | 63 | 82 | 145 |
| | 43.45 | 56.55 | 100.00 |

Frequency Missing = 4

TABLE OF Q27 BY Q30

Q27(27. What is your class standing)  Q30(30. Education level prior to program)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | High school graduate or GED | Less than two years or college | More than two years but did not graduate | Associate degree | Bachelor degree | Other | Total |
|---|---|---|---|---|---|---|---|
| Freshman | 45 | 10 | 4 | 1 | 2 | 3 | 65 |
| | 31.03 | 6.90 | 2.76 | 0.69 | 1.38 | 2.07 | 44.83 |
| | 69.23 | 15.38 | 6.15 | 1.54 | 3.08 | 4.62 | |
| | 51.72 | 33.33 | 44.44 | 20.00 | 25.00 | 50.00 | |
| First term senior | 25 | 10 | 1 | 1 | 3 | 1 | 41 |
| | 17.24 | 6.90 | 0.69 | 0.69 | 2.07 | 0.69 | 28.28 |
| | 60.98 | 24.39 | 2.44 | 2.44 | 7.32 | 2.44 | |
| | 28.74 | 33.33 | 11.11 | 20.00 | 37.50 | 16.67 | |
| Second term senior | 17 | 10 | 4 | 3 | 3 | 2 | 39 |
| | 11.72 | 6.90 | 2.76 | 2.07 | 2.07 | 1.38 | 26.90 |
| | 43.59 | 25.64 | 10.26 | 7.69 | 7.69 | 5.13 | |
| | 19.54 | 33.33 | 44.44 | 60.00 | 37.50 | 33.33 | |
| Total | 87 | 30 | 9 | 5 | 8 | 6 | 145 |
| | 60.00 | 20.69 | 6.21 | 3.45 | 5.52 | 4.14 | 100.00 |

Frequency Missing = 4

TABLE OF Q27 BY Q31

Q27(27. What is your class standing)
Q31(31. Did you take admission test?)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | No | Yes | Total |
|---|---|---|---|
| Freshman | 15 | 51 | 66 |
| | 10.27 | 34.93 | 45.21 |
| | 22.73 | 77.27 | |
| | 35.71 | 49.04 | |
| First term senio r | 15 | 25 | 40 |
| | 10.27 | 17.12 | 27.40 |
| | 37.50 | 62.50 | |
| | 35.71 | 24.04 | |
| Second term seni or | 12 | 28 | 40 |
| | 8.22 | 19.18 | 27.40 |
| | 30.00 | 70.00 | |
| | 28.57 | 26.92 | |
| Total | 42 | 104 | 146 |
| | 28.77 | 71.23 | 100.00 |

Frequency Missing = 3

TABLE OF Q27 BY Q31AA

Q27(27. What is your class standing)
Q31AA(a. Special courses in mathematics)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes | No | Total |
|---|---|---|---|
| Freshman | 26 | 24 | 50 |
| | 25.49 | 23.53 | 49.02 |
| | 52.00 | 48.00 | |
| | 57.78 | 42.11 | |
| First term senio r | 10 | 15 | 25 |
| | 9.80 | 14.71 | 24.51 |
| | 40.00 | 60.00 | |
| | 22.22 | 26.32 | |
| Second term seni or | 9 | 18 | 27 |
| | 8.82 | 17.65 | 26.47 |
| | 33.33 | 66.67 | |
| | 20.00 | 31.58 | |
| Total | 45 | 57 | 102 |
| | 44.12 | 55.88 | 100.00 |

Frequency Missing = 47

TABLE OF Q27 BY Q31AB

Q27(27. What is your class standing)
Q31AB(b. Special courses in english)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes | No | Total |
|---|---|---|---|
| Freshman | 21 | 29 | 50 |
| | 20.59 | 28.43 | 49.02 |
| | 42.00 | 58.00 | |
| | 55.26 | 45.31 | |
| First term senio r | 8 | 17 | 25 |
| | 7.84 | 16.67 | 24.51 |
| | 32.00 | 68.00 | |
| | 21.05 | 26.56 | |
| Second term seni or | 9 | 18 | 27 |
| | 8.82 | 17.65 | 26.47 |
| | 33.33 | 66.67 | |
| | 23.68 | 28.13 | |
| Total | 38 | 64 | 102 |
| | 37.25 | 62.75 | 100.00 |

Frequency Missing = 47

TABLE OF Q27 BY Q31AC

Q27(27. What is your class standing)
Q31AC(c. Special courses in reading)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Yes | No | Total |
|---|---|---|---|
| Freshman | 11 | 39 | 50 |
| | 10.78 | 38.24 | 49.02 |
| | 22.00 | 78.00 | |
| | 73.33 | 44.83 | |
| First term senio r | 2 | 23 | 25 |
| | 1.96 | 22.55 | 24.51 |
| | 8.00 | 92.00 | |
| | 13.33 | 26.44 | |
| Second term seni or | 2 | 25 | 27 |
| | 1.96 | 24.51 | 26.47 |
| | 7.41 | 92.59 | |
| | 13.33 | 28.74 | |
| Total | 15 | 87 | 102 |
| | 14.71 | 85.29 | 100.00 |

Frequency Missing = 47

TABLE OF Q27 BY Q32

Q27(27. What is your class standing)

Q32(32. Plans upon graduation)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Employment in my field | Employment not in some other area | Continue my education | Total |
|---|---|---|---|---|
| Freshman | 31<br>21.83<br>47.69<br>43.06 | 3<br>2.11<br>4.62<br>75.00 | 31<br>21.83<br>47.69<br>46.97 | 65<br>45.77 |
| First term senior | 17<br>11.97<br>44.74<br>23.61 | 1<br>0.70<br>2.63<br>25.00 | 20<br>14.08<br>52.63<br>30.30 | 38<br>26.76 |
| Second term senior | 24<br>16.90<br>61.54<br>33.33 | 0<br>0.00<br>0.00<br>0.00 | 15<br>10.56<br>38.46<br>22.73 | 39<br>27.46 |
| Total | 72<br>50.70 | 4<br>2.82 | 66<br>46.48 | 142<br>100.00 |

Frequency Missing = 7

TABLE OF Q27 BY Q33

Q27(27. What is your class standing)

Q33(33. How likely to obtain bachelors degre)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Very likely | Somewhat likely | Not too likely | Not at all likely | Total |
|---|---|---|---|---|---|
| Freshman | 27 | 27 | 7 | 2 | 63 |
| | 19.01 | 19.01 | 4.93 | 1.41 | 44.37 |
| | 42.86 | 42.86 | 11.11 | 3.17 | |
| | 44.26 | 52.94 | 29.17 | 33.33 | |
| First term senior | 19 | 10 | 9 | 1 | 39 |
| | 13.38 | 7.04 | 6.34 | 0.70 | 27.46 |
| | 48.72 | 25.64 | 23.08 | 2.56 | |
| | 31.15 | 19.61 | 37.50 | 16.67 | |
| Second term senior | 15 | 14 | 8 | 3 | 40 |
| | 10.56 | 9.86 | 5.63 | 2.11 | 28.17 |
| | 37.50 | 35.00 | 20.00 | 7.50 | |
| | 24.59 | 27.45 | 33.33 | 50.00 | |
| Total | 61 | 51 | 24 | 6 | 142 |
| | 42.96 | 35.92 | 16.90 | 4.23 | 100.00 |

Frequency Missing = 7

TABLE OF Q27 BY Q34

Q27(27. What is your class standing)  Q34(34. Current employment status)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Not employed for pay | Part-time in area related to my program | Full-time in area related to my program | Part-time in area not related to program | Full-time in area not related to program | Total |
|---|---|---|---|---|---|---|
| Freshman | 30 | 13 | 2 | 18 | 2 | 65 |
| | 20.69 | 8.97 | 1.38 | 12.41 | 1.38 | 44.83 |
| | 46.15 | 20.00 | 3.08 | 27.69 | 3.08 | |
| | 50.00 | 37.14 | 20.00 | 51.43 | 40.00 | |
| First term senior | 16 | 11 | 2 | 9 | 2 | 40 |
| | 11.03 | 7.59 | 1.38 | 6.21 | 1.38 | 27.59 |
| | 40.00 | 27.50 | 5.00 | 22.50 | 5.00 | |
| | 26.67 | 31.43 | 20.00 | 25.71 | 40.00 | |
| Second term senior | 14 | 11 | 6 | 8 | 1 | 40 |
| | 9.66 | 7.59 | 4.14 | 5.52 | 0.69 | 27.59 |
| | 35.00 | 27.50 | 15.00 | 20.00 | 2.50 | |
| | 23.33 | 31.43 | 60.00 | 22.86 | 20.00 | |
| Total | 60 | 35 | 10 | 35 | 5 | 145 |
| | 41.38 | 24.14 | 6.90 | 24.14 | 3.45 | 100.00 |

Frequency Missing = 4

TABLE OF Q27 BY Q35

Q27(27. What is your class standing)  Q35(35. Age category)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | 22 or younger | 23 to 28 | 29 to 35 | 36 to 45 | 46 or older | Total |
|---|---|---|---|---|---|---|
| Freshman | 38 | 7 | 8 | 10 | 1 | 64 |
| | 26.39 | 4.86 | 5.56 | 6.94 | 0.69 | 44.44 |
| | 59.38 | 10.94 | 12.50 | 15.63 | 1.56 | |
| | 54.29 | 33.33 | 53.33 | 34.48 | 11.11 | |
| First term senior | 23 | 5 | 3 | 7 | 2 | 40 |
| | 15.97 | 3.47 | 2.08 | 4.86 | 1.39 | 27.78 |
| | 57.50 | 12.50 | 7.50 | 17.50 | 5.00 | |
| | 32.86 | 23.81 | 20.00 | 24.14 | 22.22 | |
| Second term senior | 9 | 9 | 4 | 12 | 6 | 40 |
| | 6.25 | 6.25 | 2.78 | 8.33 | 4.17 | 27.78 |
| | 22.50 | 22.50 | 10.00 | 30.00 | 15.00 | |
| | 12.86 | 42.86 | 26.67 | 41.38 | 66.67 | |
| Total | 70 | 21 | 15 | 29 | 9 | 144 |
| | 48.61 | 14.58 | 10.42 | 20.14 | 6.25 | 100.00 |

Frequency Missing = 5

TABLE OF Q27 BY Q36

Q27(27. What is your class standing)
Q36(36. Gender)

| Frequency<br>Percent<br>Row Pct<br>Col Pct | Male | Female | Total |
|---|---|---|---|
| Freshman | 40 | 26 | 66 |
| | 27.40 | 17.81 | 45.21 |
| | 60.61 | 39.39 | |
| | 47.06 | 42.62 | |
| First term senio | 23 | 17 | 40 |
| r | 15.75 | 11.64 | 27.40 |
| | 57.50 | 42.50 | |
| | 27.06 | 27.87 | |
| Second term senı | 22 | 18 | 40 |
| or | 15.07 | 12.33 | 27.40 |
| | 55.00 | 45.00 | |
| | 25.88 | 29.51 | |
| Total | 85 | 61 | 146 |
| | 58.22 | 41.78 | 100.00 |

Frequency Missing = 3

# STUDENT DATA PROFILE
# by
# YEAR 1 VERSUS YEAR 2 COLLEGES

Natural Resource Students Survey--Central Oregon, Grays Harbor and Shasta

COLLEGE

| CC | Frequency | Percent |
|---|---|---|
| Central Oregon | 16 | 14.7 |
| Grays Harbor | 19 | 17.4 |
| Shasta | 74 | 67.9 |

What is your major field?

| Q1 | Frequency | Percent |
|---|---|---|
| Wildlife | 6 | 5.7 |
| Forestry | 6 | 5.7 |
| Forestry-Option | 2 | 1.9 |
| Water Resources | 2 | 1.9 |
| Natural Resources | 21 | 19.8 |
| Agriculture | 29 | 27.4 |
| Equine | 1 | 0.9 |
| Horticulture | 16 | 15.1 |
| Fisheries | 7 | 6.6 |
| GIS | 16 | 15.1 |

Frequency Missing = 3

How long have you been enrolled?

| Q2 | Frequency | Percent |
|---|---|---|
| Less than one year | 44 | 40.7 |
| More then one less than two years | 33 | 30.6 |
| Two to three years | 24 | 22.2 |
| More than three less than four years | 3 | 2.8 |
| Four years or more | 4 | 3.7 |

Frequency Missing = 1

3. Indicate whether you took the following mathematics courses

a. Technical mathematics

| Q3A | Frequency | Percent |
|---|---|---|
| Yes | 29 | 27.1 |
| No | 78 | 72.9 |

Frequency Missing = 2

b. Trigonometry

| Q3B | Frequency | Percent |
|---|---|---|
| Yes | 24 | 22.4 |
| No | 83 | 77.6 |

Frequency Missing = 2

c. Geometry

| Q3C | Frequency | Percent |
|---|---|---|
| Yes | 39 | 36.4 |
| No | 68 | 63.6 |

Frequency Missing = 2

d. Algebra(non-college level)

| Q3D | Frequency | Percent |
|---|---|---|
| Yes | 69 | 64.5 |
| No | 38 | 35.5 |

Frequency Missing = 2

e. Algebra(college level)

| Q3E | Frequency | Percent |
|---|---|---|
| Yes | 46 | 43.0 |
| No | 61 | 57.0 |

Frequency Missing = 2

f. Statistics

| Q3F | Frequency | Percent |
|---|---|---|
| Yes | 34 | 32.4 |
| No | 71 | 67.6 |

Frequency Missing = 4

g. College level mathematics

| Q3G | Frequency | Percent |
|---|---|---|
| Yes | 25 | 23.8 |
| No | 80 | 76.2 |

Frequency Missing = 4

4. How often have used mathematics?

| Q4 | Frequency | Percent |
|---|---|---|
| Never | 18 | 16.7 |
| Often | 41 | 38.0 |
| Occasionally | 49 | 45.4 |

Frequency Missing = 1

4a. Indicate if each are of mathematics was useful

a. Basic arithmetic

| Q4AA | Frequency | Percent |
|---|---|---|
| Very | 70 | 78.7 |
| Somewhat | 15 | 16.9 |
| Not used | 4 | 4.5 |

Frequency Missing = 20

b. Trigonometry

| Q4AB | Frequency | Percent |
|---|---|---|
| Very | 13 | 14.6 |

| | | |
|---|---|---|
| Somewhat | 19 | 21.3 |
| Not used | 57 | 64.0 |

Frequency Missing = 20

c. Geometry

| Q4AC | Frequency | Percent |
|---|---|---|
| Very | 18 | 20.2 |
| Somewhat | 30 | 33.7 |
| Not used | 41 | 46.1 |

Frequency Missing = 20

d. Algebra

| Q4AD | Frequency | Percent |
|---|---|---|
| Very | 24 | 27.0 |
| Somewhat | 43 | 48.3 |
| Not used | 22 | 24.7 |

Frequency Missing = 20

The SAS System

e. Statistics

| Q4AE | Frequency | Percent |
|---|---|---|
| Very | 21 | 23.6 |
| Somewhat | 27 | 30.3 |
| Not used | 41 | 46.1 |

Frequency Missing = 20

5. Was learning math important?

| Q5 | Frequency | Percent |
|---|---|---|
| Important | 87 | 82.1 |
| Not important | 19 | 17.9 |

Frequency Missing = 3

6. Profs stress math as important

| Q6 | Frequency | Percent |
|---|---|---|
| Yes, most did | 41 | 38.0 |
| Yes, some did | 51 | 47.2 |
| No | 16 | 14.8 |

Frequency Missing = 1

7. Have you taken science courses?

| Q7 | Frequency | Percent |
|---|---|---|
| No | 59 | 54.1 |
| Yes | 50 | 45.9 |

7a. Indicate whether you took the following science courses

a. Genearal biology

| Q7AA | Frequency | Percent |
|---|---|---|
| Yes | 22 | 44.9 |
| No | 27 | 55.1 |

Frequency Missing = 60

b. Specialized biology or zoology

| Q7AB | Frequency | Percent |
|---|---|---|
| Yes | 11 | 22.4 |
| No | 38 | 77.6 |

Frequency Missing = 60

c. Chemistry

| Q7AC | Frequency | Percent |
|---|---|---|
| Yes | 26 | 53.1 |
| No | 23 | 46.9 |

Frequency Missing = 60

d. Geology

| Q7AD | Frequency | Percent |
|---|---|---|
| Yes | 13 | 26.5 |
| No | 36 | 73.5 |

Frequency Missing = 60

e. Other

| Q7AE | Frequency | Percent |
|---|---|---|
| Yes | 20 | 40.0 |
| No | 30 | 60.0 |

Frequency Missing = 59

7b. Which was used most in science?

| Q7B | Frequency | Percent |
|---|---|---|
| Only lecture | 2 | 4.0 |
| Lecture and labs in an inside lab | 18 | 36.0 |
| Lecture and labs in the field | 8 | 16.0 |
| Lecture, science labs and field labs | 22 | 44.0 |

Frequency Missing = 59

7c. How often did use science techniques

| Q7C | Frequency | Percent |
|---|---|---|
| Often | 22 | 44.0 |
| Occasionally | 28 | 56.0 |

Frequency Missing = 59

8. How important is science?

| Q8 | Frequency | Percent |
|---|---|---|
| Important | 89 | 84.8 |
| Unimportant | 16 | 15.2 |

Frequency Missing = 4

9. Profs stress science as important

| Q9 | Frequency | Percent |
|---|---|---|
| Yes, most did | 38 | 35.5 |
| Yes, some did | 46 | 43.0 |
| No | 23 | 21.5 |

Frequency Missing = 2

10. Have you taken ecosystem science?

| Q10 | Frequency | Percent |
|---|---|---|
| Yes | 55 | 51.9 |
| No | 51 | 48.1 |

Frequency Missing = 3

11. Were concepts of ecosystem taught?

| Q11 | Frequency | Percent |
|---|---|---|
| Yes | 71 | 68.3 |
| No | 33 | 31.7 |

Frequency Missing = 5

12. Profs stress importance of ecosystem

| Q12 | Frequency | Percent |
|---|---|---|
| Yes, most did | 55 | 53.4 |
| Yes, some did | 36 | 35.0 |
| No | 12 | 11.7 |

Frequency Missing = 6

13. Do you understand ecosystems?

| Q13 | Frequency | Percent |
|---|---|---|
| Yes | 88 | 86.3 |
| No | 14 | 13.7 |

Frequency Missing = 7

14. Understanding of ecological successi

| Q14 | Frequency | Percent |
|---|---|---|
| Plant and animal community change | 40 | 42.1 |
| Energy flow through ecosystems | 5 | 5.3 |
| Interrelationships between living and non-living | 44 | 46.3 |
| Abundance of plant and animal communities | 6 | 6.3 |

Frequency Missing = 14

15. Food web describe which?

| Q15 | Frequency | Percent |
|---|---|---|
| Production and accumulation of carbohydrates | 19 | 20.0 |
| Energy flow through an ecosystem | 47 | 49.5 |
| Plant and animal community change | 12 | 12.6 |
| Population growth in an ecosystem | 17 | 17.9 |

Frequency Missing = 14

16. Diff between community & ecosystem

| Q16 | Frequency | Percent |
|---|---|---|
| Plants | 9 | 9.3 |
| Animals | 7 | 7.2 |
| Bacteria | 22 | 22.7 |
| Humans | 6 | 6.2 |
| The physical environment | 53 | 54.6 |

Frequency Missing = 12

17. Trees have the ability to

| Q17 | Frequency | Percent |
|---|---|---|
| Shade soils | 5 | 4.8 |
| Convert Carbon dioxide into carbohydrates | 24 | 23.1 |
| Store large quantities of water | 3 | 2.9 |
| Provide wildlife habitat | 5 | 4.8 |
| Produce oxygen | 67 | 64.4 |

Frequency Missing = 5

18. Which decreases as succession proceed

| Q18 | Frequency | Percent |
|---|---|---|
| Soil depth | 20 | 22.7 |
| Humidity | 5 | 5.7 |
| Animal diversity | 45 | 51.1 |
| Soil temperature | 18 | 20.5 |

Frequency Missing = 21

19. Least likely part of forest manageme

| Q19 | Frequency | Percent |
|---|---|---|
| Maintain decomposition and nitrogen fixation | 6 | 6.4 |
| Involve society in decision making | 20 | 21.3 |
| Use modern imaging techniques | 22 | 23.4 |
| Plant a monoculture of douglas fir . | 43 | 45.7 |
| Consider downstream effects | 3 | 3.2 |

Frequency Missing = 15

20. Have you taken a GIS course?

| Q20 | Frequency | Percent |
|---|---|---|
| No | 83 | 76.1 |
| Yes | 26 | 23.9 |

20a. How often did you use GIS?

| Q20A | Frequency | Percent |
|---|---|---|
| Often | 17 | 65.4 |
| Occasionally | 9 | 34.6 |

Frequency Missing = 83

20b. Was learning GIS important?

| Q20B | Frequency | Percent |
|---|---|---|
| Important | 25 | 96.2 |
| Unimportant | 1 | 3.8 |

Frequency Missing = 83

20c. Profs stress GIS as important

| Q20C | Frequency | Percent |
|---|---|---|
| Yes, most did | 21 | 80.8 |
| Yes, some did | 4 | 15.4 |
| No | 1 | 3.8 |

Frequency Missing = 83

21. Have taken part in job education

| Q21 | Frequency | Percent |
|---|---|---|
| No | 55 | 50.5 |
| Yes | 54 | 49.5 |

21a. How important was work experience?

| Q21A | Frequency | Percent |
|---|---|---|
| Very important | 43 | 79.6 |
| Somewhat important but not essential | 10 | 18.5 |
| Not important | 1 | 1.9 |

Frequency Missing = 55

21b. Did work involve technical skills?

| Q21B | Frequency | Percent |
|---|---|---|
| Yes | 49 | 90.7 |
| No | 5 | 9.3 |

Frequency Missing = 55

21c. How often did you use the skills in each course

a. Mathematics courses

| Q21CA | Frequency | Percent |
|---|---|---|
| Often | 18 | 34.0 |
| Sometimes | 27 | 50.9 |
| Never | 6 | 11.3 |
| Have not taken | 2 | 3.8 |

Frequency Missing = 56

b. Science courses

| Q21CB | Frequency | Percent |
|---|---|---|
| Often | 17 | 32.7 |
| Sometimes | 21 | 40.4 |
| Never | 5 | 9.6 |
| Have not taken | 9 | 17.3 |

Frequency Missing = 57

c. GIS courses

| Q21CC | Frequency | Percent |
|---|---|---|
| Often | 10 | 20.0 |
| Sometimes | 8 | 16.0 |
| Never | 9 | 18.0 |
| Have not taken | 23 | 46.0 |

Frequency Missing = 59

d. Communications

| Q21CD | Frequency | Percent |
|---|---|---|
| Often | 35 | 66.0 |
| Sometimes | 13 | 24.5 |
| Never | 5 | 9.4 |

Frequency Missing = 56

22. Rating of academic level

| Q22 | Frequency | Percent |
|---|---|---|
| Very difficult and required special effort | 13 | 12.4 |
| Challenging but within my abilities | 87 | 82.9 |
| Fairly easy and required minimal effort | 5 | 4.8 |

Frequency Missing = 4

23. Overall results of education

| Q23 | Frequency | Percent |
|---|---|---|
| Taught me essential knowledge | 69 | 63.9 |
| Important knowledge but unimportant parts | 28 | 25.9 |
| Important knowledge but not essential | 6 | 5.6 |
| Other | 5 | 4.6 |

Frequency Missing = 1

24. Do you have an advisor?

| Q24 | Frequency | Percent |
|---|---|---|
| No | 34 | 31.2 |
| Yes | 75 | 68.8 |

24a. How do you meet advisor?

| Q24A | Frequency | Percent |
|---|---|---|
| At least once a month | 22 | 29.7 |
| One or two times a term | 45 | 60.8 |
| Never | 7 | 9.5 |

Frequency Missing = 35

24b. Has advisor discussed job market?

| Q24B | Frequency | Percent |
|---|---|---|
| Yes | 53 | 71.6 |
| No | 21 | 28.4 |

Frequency Missing = 35

25. Was sequence clearly explained?

| Q25 | Frequency | Percent |
|---|---|---|
| Yes | 65 | 61.9 |
| No | 40 | 38.1 |

Frequency Missing = 4

26. Have taken recommended sequence

| Q26 | Frequency | Percent |
|---|---|---|
| Yes, most courses | 35 | 32.4 |
| Yes, some courses | 40 | 37.0 |
| No. not following the sequence | 19 | 17.6 |
| I am not sure | 14 | 13.0 |

Frequency Missing = 1

27. What is your class standing

| Q27 | Frequency | Percent |
|---|---|---|
| Freshman | 42 | 39.3 |
| First term senior | 29 | 27.1 |
| Second term senior | 36 | 33.6 |

Frequency Missing = 2

28. Mathematics in high school

| Q28 | Frequency | Percent |
|---|---|---|
| Elementery algebra | 24 | 23.3 |
| Intermediate algebra | 42 | 40.8 |
| Advanced mathematics | 21 | 20.4 |
| Other | 16 | 15.5 |

Frequency Missing = 6

29. Indicate whether you completed the following science courses

a. General science

| Q29A | Frequency | Percent |
|---|---|---|
| Yes | 92 | 86.0 |
| No | 15 | 14.0 |

Frequency Missing = 2

b. Biology

| Q29B | Frequency | Percent |
|---|---|---|
| Yes | 68 | 63.6 |
| No | 39 | 36.4 |

Frequency Missing = 2

c. Chemistry

| Q29C | Frequency | Percent |
|---|---|---|
| Yes | 41 | 38.3 |
| No | 66 | 61.7 |

Frequency Missing = 2

d. Physics

| Q29D | Frequency | Percent |
|---|---|---|
| Yes | 15 | 14.0 |
| No | 92 | 86.0 |

Frequency Missing = 2

e. Environmental Science

| Q29E | Frequency | Percent |
|---|---|---|
| Yes | 46 | 43.0 |
| No | 61 | 57.0 |

Frequency Missing = 2

30. Education level prior to program

| Q30 | Frequency | Percent |
|---|---|---|
| High school graduate or GED | 60 | 56.1 |
| Less than two years or college | 24 | 22.4 |
| More than two years but did not graduate | 6 | 5.6 |
| Associate degree | 5 | 4.7 |
| Bachelor degree | 7 | 6.5 |
| Other | 5 | 4.7 |

Frequency Missing = 2

31. Did you take admission test?

| Q31 | Frequency | Percent |
|---|---|---|
| No | 35 | 32.1 |
| Yes | 74 | 67.9 |

31a. Did you take the following to prepare for college work?

a. Special courses in mathematics

| Q31AA | Frequency | Percent |
|---|---|---|
| Yes | 30 | 41.7 |
| No | 42 | 58.3 |

Frequency Missing = 37

b. Special courses in english

| Q31AB | Frequency | Percent |
|---|---|---|
| Yes | 28 | 38.9 |
| No | 44 | 61.1 |

Frequency Missing = 37

c. Special courses in reading

| Q31AC | Frequency | Percent |
|---|---|---|
| Yes | 8 | 11.1 |
| No | 64 | 88.9 |

Frequency Missing = 37

32. Plans upon graduation

| Q32 | Frequency | Percent |
|---|---|---|
| Employment in my field | 57 | 54.3 |
| Employment not in some other area | 2 | 1.9 |
| Continue my education | 46 | 43.8 |

Frequency Missing = 4

33. How likely to obtain bachelors degre

| Q33 | Frequency | Percent |
|---|---|---|
| Very likely | 45 | 42.5 |
| Somewhat likely | 36 | 34.0 |
| Not too likely | 21 | 19.8 |
| Not at all likely | 4 | 3.8 |

Frequency Missing = 3

34. Current employment status

| Q34 | Frequency | Percent |
|---|---|---|
| Not employed for pay | 43 | 40.2 |
| Part-time in area related to my program | 29 | 27.1 |
| Full-time in area related to my program | 10 | 9.3 |
| Part-time in area not related to program | 23 | 21.5 |
| Full-time in area not related to program | 2 | 1.9 |

Frequency Missing = 2

35. Age category

| Q35 | Frequency | Percent |
|---|---|---|
| 22 or younger | 43 | 40.2 |
| 23 to 28 | 17 | 15.9 |
| 29 to 35 | 10 | 9.3 |
| 36 to 45 | 29 | 27.1 |
| 46 or older | 8 | 7.5 |

Frequency Missing = 2

36. Gender

| Q36 | Frequency | Percent |
|---|---|---|
| Male | 56 | 51.9 |
| Female | 52 | 48.1 |

Frequency Missing = 1

Natural Resource Students Survey--Central Oregon, Grays Harbor and Shasta

COLLEGE

| CC | Frequency | Percent |
|---|---|---|
| Central Oregon | 16 | 14.7 |
| Grays Harbor | 19 | 17.4 |
| Shasta | 74 | 67.9 |

What is your major field?

| Q1 | Frequency | Percent |
|---|---|---|
| Wildlife | 6 | 5.7 |
| Forestry | 6 | 5.7 |
| Forestry-Option | 2 | 1.9 |
| Water Resources | 2 | 1.9 |
| Natural Resources | 21 | 19.8 |
| Agriculture | 29 | 27.4 |
| Equine | 1 | 0.9 |
| Horticulture | 16 | 15.1 |
| Fisheries | 7 | 6.6 |
| GIS | 16 | 15.1 |

Frequency Missing = 3

How long have you been enrolled?

| Q2 | Frequency | Percent |
|---|---|---|
| Less than one year | 44 | 40.7 |
| More then one less than two years | 33 | 30.6 |
| Two to three years | 24 | 22.2 |
| More than three less than four years | 3 | 2.8 |
| Four years or more | 4 | 3.7 |

Frequency Missing = 1

3. Indicate whether you took the following mathematics courses

a. Technical mathematics

| Q3A | Frequency | Percent |
|---|---|---|
| Yes | 29 | 27.1 |
| No | 78 | 72.9 |

Frequency Missing = 2

b. Trigonometry

| Q3B | Frequency | Percent |
|---|---|---|
| Yes | 24 | 22.4 |
| No | 83 | 77.6 |

Frequency Missing = 2

c. Geometry

| Q3C | Frequency | Percent |
|---|---|---|
| Yes | 39 | 36.4 |
| No | 68 | 63.6 |

Frequency Missing = 2

d. Algebra(non-college level)

| Q3D | Frequency | Percent |
|---|---|---|
| Yes | 69 | 64.5 |
| No | 38 | 35.5 |

Frequency Missing = 2

e. Algebra(college level)

| Q3E | Frequency | Percent |
|---|---|---|
| Yes | 46 | 43.0 |
| No | 61 | 57.0 |

Frequency Missing = 2

f. Statistics

| Q3F | Frequency | Percent |
|---|---|---|
| Yes | 34 | 32.4 |
| No | 71 | 67.6 |

Frequency Missing = 4

g. College level mathematics

| Q3G | Frequency | Percent |
|---|---|---|
| Yes | 25 | 23.8 |
| No | 80 | 76.2 |

Frequency Missing = 4

4. How often have used mathematics?

| Q4 | Frequency | Percent |
|---|---|---|
| Never | 18 | 16.7 |
| Often | 41 | 38.0 |
| Occasionally | 49 | 45.4 |

Frequency Missing = 1

4a. Indicate if each are of mathematics was useful

a. Basic arithmetic

| Q4AA | Frequency | Percent |
|---|---|---|
| Very | 70 | 78.7 |
| Somewhat | 15 | 16.9 |
| Not used | 4 | 4.5 |

Frequency Missing = 20

b. Trigonometry

| Q4AB | Frequency | Percent |
|---|---|---|
| Very | 13 | 14.6 |

| | | |
|---|---|---|
| Somewhat | 19 | 21.3 |
| Not used | 57 | 64.0 |

Frequency Missing = 20

c. Geometry

| Q4AC | Frequency | Percent |
|---|---|---|
| Very | 18 | 20.2 |
| Somewhat | 30 | 33.7 |
| Not used | 41 | 46.1 |

Frequency Missing = 20

d. Algebra

| Q4AD | Frequency | Percent |
|---|---|---|
| Very | 24 | 27.0 |
| Somewhat | 43 | 48.3 |
| Not used | 22 | 24.7 |

Frequency Missing = 20

The SAS System

e. Statistics

| Q4AE | Frequency | Percent |
|---|---|---|
| Very | 21 | 23.6 |
| Somewhat | 27 | 30.3 |
| Not used | 41 | 46.1 |

Frequency Missing = 20

5. Was learning math important?

| Q5 | Frequency | Percent |
|---|---|---|
| Important | 87 | 82.1 |
| Not important | 19 | 17.9 |

Frequency Missing = 3

6. Profs stress math as important

| Q6 | Frequency | Percent |
|---|---|---|
| Yes, most did | 41 | 38.0 |
| Yes, some did | 51 | 47.2 |
| No | 16 | 14.8 |

Frequency Missing = 1

7. Have you taken science courses?

| Q7 | Frequency | Percent |
|---|---|---|
| No | 59 | 54.1 |
| Yes | 50 | 45.9 |

7a. Indicate whether you took the following science courses

a. Genearal biology

| Q7AA | Frequency | Percent |
|---|---|---|
| Yes | 22 | 44.9 |
| No | 27 | 55.1 |

Frequency Missing = 60

b. Specialized biology or zoology

| Q7AB | Frequency | Percent |
|---|---|---|
| Yes | 11 | 22.4 |
| No | 38 | 77.6 |

Frequency Missing = 60

c. Chemistry

| Q7AC | Frequency | Percent |
|---|---|---|
| Yes | 26 | 53.1 |
| No | 23 | 46.9 |

Frequency Missing = 60

d. Geology

| Q7AD | Frequency | Percent |
|---|---|---|
| Yes | 13 | 26.5 |
| No | 36 | 73.5 |

Frequency Missing = 60

e. Other

| Q7AE | Frequency | Percent |
|---|---|---|
| Yes | 20 | 40.0 |
| No | 30 | 60.0 |

Frequency Missing = 59

7b. Which was used most in science?

| Q7B | Frequency | Percent |
|---|---|---|
| Only lecture | 2 | 4.0 |
| Lecture and labs in an inside lab | 18 | 36.0 |
| Lecture and labs in the field | 8 | 16.0 |
| Lecture, science labs and field labs | 22 | 44.0 |

Frequency Missing = 59

7c. How often did use science techniques

| Q7C | Frequency | Percent |
|---|---|---|
| Often | 22 | 44.0 |
| Occasionally | 28 | 56.0 |

Frequency Missing = 59

8. How important is science?

| Q8 | Frequency | Percent |
|---|---|---|
| Important | 89 | 84.8 |
| Unimportant | 16 | 15.2 |

Frequency Missing = 4

9. Profs stress science as important

| Q9 | Frequency | Percent |
|---|---|---|
| Yes, most did | 38 | 35.5 |
| Yes, some did | 46 | 43.0 |
| No | 23 | 21.5 |

Frequency Missing = 2

10. Have you taken ecosystem science?

| Q10 | Frequency | Percent |
|---|---|---|
| Yes | 55 | 51.9 |
| No | 51 | 48.1 |

Frequency Missing = 3

11. Were concepts of ecosystem taught?

| Q11 | Frequency | Percent |
|---|---|---|
| Yes | 71 | 68.3 |
| No | 33 | 31.7 |

Frequency Missing = 5

12. Profs stress importance of ecosystem

| Q12 | Frequency | Percent |
|---|---|---|
| Yes, most did | 55 | 53.4 |
| Yes, some did | 36 | 35.0 |
| No | 12 | 11.7 |

Frequency Missing = 6

13. Do you understand ecosystems?

| Q13 | Frequency | Percent |
|---|---|---|
| Yes | 88 | 86.3 |
| No | 14 | 13.7 |

Frequency Missing = 7

14. Understanding of ecological successi

| Q14 | Frequency | Percent |
|---|---|---|
| Plant and animal community change | 40 | 42.1 |
| Energy flow through ecosystems | 5 | 5.3 |
| Interrelationships between living and non-living | 44 | 46.3 |
| Abundance of plant and animal communities | 6 | 6.3 |

Frequency Missing = 14

15. Food web describe which?

| Q15 | Frequency | Percent |
|---|---|---|
| Production and accumulation of carbohydrates | 19 | 20.0 |
| Energy flow through an ecosystem | 47 | 49.5 |
| Plant and animal community change | 12 | 12.6 |
| Population growth in an ecosystem | 17 | 17.9 |

Frequency Missing = 14

16. Diff between community & ecosystem

| Q16 | Frequency | Percent |
|---|---|---|
| Plants | 9 | 9.3 |
| Animals | 7 | 7.2 |
| Bacteria | 22 | 22.7 |
| Humans | 6 | 6.2 |
| The physical environment | 53 | 54.6 |

Frequency Missing = 12

17. Trees have the ability to

| Q17 | Frequency | Percent |
|---|---|---|
| Shade soils | 5 | 4.8 |
| Convert Carbon dioxide into carbohydrates | 24 | 23.1 |
| Store large quantities of water | 3 | 2.9 |
| Provide wildlife habitat | 5 | 4.8 |
| Produce oxygen | 67 | 64.4 |

Frequency Missing = 5

18. Which decreases as succession proceed

| Q18 | Frequency | Percent |
|---|---|---|
| Soil depth | 20 | 22.7 |
| Humidity | 5 | 5.7 |
| Animal diversity | 45 | 51.1 |
| Soil temperature | 18 | 20.5 |

Frequency Missing = 21

19. Least likely part of forest manageme

| Q19 | Frequency | Percent |
|---|---|---|
| Maintain decomposition and nitrogen fixation | 6 | 6.4 |
| Involve society in decision making | 20 | 21.3 |
| Use modern imaging techniques | 22 | 23.4 |
| Plant a monoculture of douglas fir | 43 | 45.7 |
| Consider downstream effects | 3 | 3.2 |

Frequency Missing = 15

20. Have you taken a GIS course?

| Q20 | Frequency | Percent |
|---|---|---|
| No | 83 | 76.1 |
| Yes | 26 | 23.9 |

20a. How often did you use GIS?

| Q20A | Frequency | Percent |
|---|---|---|
| Often | 17 | 65.4 |
| Occasionally | 9 | 34.6 |

Frequency Missing = 83

20b. Was learning GIS important?

| Q20B | Frequency | Percent |
|---|---|---|
| Important | 25 | 96.2 |
| Unimportant | 1 | 3.8 |

Frequency Missing = 83

20c. Profs stress GIS as important

| Q20C | Frequency | Percent |
|---|---|---|
| Yes, most did | 21 | 80.8 |
| Yes, some did | 4 | 15.4 |
| No | 1 | 3.8 |

Frequency Missing = 83

21. Have taken part in job education

| Q21 | Frequency | Percent |
|---|---|---|
| No | 55 | 50.5 |
| Yes | 54 | 49.5 |

21a. How important was work experience?

| Q21A | Frequency | Percent |
|---|---|---|
| Very important | 43 | 79.6 |
| Somewhat important but not essential | 10 | 18.5 |
| Not important | 1 | 1.9 |

Frequency Missing = 55

21b. Did work involve technical skills?

| Q21B | Frequency | Percent |
|---|---|---|
| Yes | 49 | 90.7 |
| No | 5 | 9.3 |

Frequency Missing = 55

21c. How often did you use the skills in each course

a. Mathematics courses

| Q21CA | Frequency | Percent |
|---|---|---|
| Often | 18 | 34.0 |
| Sometimes | 27 | 50.9 |
| Never | 6 | 11.3 |
| Have not taken | 2 | 3.8 |

Frequency Missing = 56

b. Science courses

| Q21CB | Frequency | Percent |
|---|---|---|
| Often | 17 | 32.7 |
| Sometimes | 21 | 40.4 |
| Never | 5 | 9.6 |
| Have not taken | 9 | 17.3 |

Frequency Missing = 57

c. GIS courses

| Q21CC | Frequency | Percent |
|---|---|---|
| Often | 10 | 20.0 |
| Sometimes | 8 | 16.0 |
| Never | 9 | 18.0 |
| Have not taken | 23 | 46.0 |

Frequency Missing = 59

d. Communications

| Q21CD | Frequency | Percent |
|---|---|---|
| Often | 35 | 66.0 |
| Sometimes | 13 | 24.5 |
| Never | 5 | 9.4 |

Frequency Missing = 56

22. Rating of academic level

| Q22 | Frequency | Percent |
|---|---|---|
| Very difficult and required special effort | 13 | 12.4 |
| Challenging but within my abilities | 87 | 82.9 |
| Fairly easy and required minimal effort | 5 | 4.8 |

Frequency Missing = 4

23. Overall results of education

| Q23 | Frequency | Percent |
|---|---|---|
| Taught me essential knowledge | 69 | 63.9 |
| Important knowledge but unimportant parts | 28 | 25.9 |
| Important knowledge but not essential | 6 | 5.6 |
| Other | 5 | 4.6 |

Frequency Missing = 1

24. Do you have an advisor?

| Q24 | Frequency | Percent |
|---|---|---|
| No | 34 | 31.2 |
| Yes | 75 | 68.8 |

24a. How do you meet advisor?

| Q24A | Frequency | Percent |
|---|---|---|
| At least once a month | 22 | 29.7 |
| One or two times a term | 45 | 60.8 |
| Never | 7 | 9.5 |

Frequency Missing = 35

24b. Has advisor discussed job market?

| Q24B | Frequency | Percent |
|---|---|---|
| Yes | 53 | 71.6 |
| No | 21 | 28.4 |

Frequency Missing = 35

25. Was sequence clearly explained?

| Q25 | Frequency | Percent |
|---|---|---|
| Yes | 65 | 61.9 |
| No | 40 | 38.1 |

Frequency Missing = 4

26. Have taken recommended sequence

| Q26 | Frequency | Percent |
|---|---|---|
| Yes, most courses | 35 | 32.4 |
| Yes, some courses | 40 | 37.0 |
| No. not following the sequence | 19 | 17.6 |
| I am not sure | 14 | 13.0 |

Frequency Missing = 1

27. What is your class standing

| Q27 | Frequency | Percent |
|---|---|---|
| Freshman | 42 | 39.3 |
| First term senior | 29 | 27.1 |
| Second term senior | 36 | 33.6 |

Frequency Missing = 2

28. Mathematics in high school

| Q28 | Frequency | Percent |
|---|---|---|
| Elementery algebra | 24 | 23.3 |
| Intermediate algebra | 42 | 40.8 |
| Advanced mathematics | 21 | 20.4 |
| Other | 16 | 15.5 |

Frequency Missing = 6

29. Indicate whether you completed the following science courses

a. General science

| Q29A | Frequency | Percent |
|---|---|---|
| Yes | 92 | 86.0 |
| No | 15 | 14.0 |

Frequency Missing = 2

b. Biology

| Q29B | Frequency | Percent |
|---|---|---|
| Yes | 68 | 63.6 |
| No | 39 | 36.4 |

Frequency Missing = 2

c. Chemistry

| Q29C | Frequency | Percent |
|---|---|---|
| Yes | 41 | 38.3 |
| No | 66 | 61.7 |

Frequency Missing = 2

d. Physics

| Q29D | Frequency | Percent |
|---|---|---|
| Yes | 15 | 14.0 |
| No | 92 | 86.0 |

Frequency Missing = 2

e. Environmental Science

| Q29E | Frequency | Percent |
|---|---|---|
| Yes | 46 | 43.0 |
| No | 61 | 57.0 |

Frequency Missing = 2

30. Education level prior to program

| Q30 | Frequency | Percent |
|---|---|---|
| High school graduate or GED | 60 | 56.1 |
| Less than two years or college | 24 | 22.4 |
| More than two years but did not graduate | 6 | 5.6 |
| Associate degree | 5 | 4.7 |
| Bachelor degree | 7 | 6.5 |
| Other | 5 | 4.7 |

Frequency Missing = 2

31. Did you take admission test?

| Q31 | Frequency | Percent |
|---|---|---|
| No | 35 | 32.1 |
| Yes | 74 | 67.9 |

31a. Did you take the following to prepare for college work?

a. Special courses in mathematics

| Q31AA | Frequency | Percent |
|---|---|---|
| Yes | 30 | 41.7 |
| No | 42 | 58.3 |

Frequency Missing = 37

b. Special courses
in english

| Q31AB | Frequency | Percent |
|---|---|---|
| Yes | 28 | 38.9 |
| No | 44 | 61.1 |

Frequency Missing = 37

c. Special courses
in reading

| Q31AC | Frequency | Percent |
|---|---|---|
| Yes | 8 | 11.1 |
| No | 64 | 88.9 |

Frequency Missing = 37

32. Plans upon graduation

| Q32 | Frequency | Percent |
|---|---|---|
| Employment in my field | 57 | 54.3 |
| Employment not in some other area | 2 | 1.9 |
| Continue my education | 46 | 43.8 |

Frequency Missing = 4

33. How likely to obtain bachelors degre

| Q33 | Frequency | Percent |
|---|---|---|
| Very likely | 45 | 42.5 |
| Somewhat likely | 36 | 34.0 |
| Not too likely | 21 | 19.8 |
| Not at all likely | 4 | 3.8 |

Frequency Missing = 3

34. Current employment status

| Q34 | Frequency | Percent |
|---|---|---|
| Not employed for pay | 43 | 40.2 |
| Part-time in area related to my program | 29 | 27.1 |
| Full-time in area related to my program | 10 | 9.3 |
| Part-time in area not related to program | 23 | 21.5 |
| Full-time in area not related to program | 2 | 1.9 |

Frequency Missing = 2

35. Age category

| Q35 | Frequency | Percent |
|---|---|---|
| 22 or younger | 43 | 40.2 |
| 23 to 28 | 17 | 15.9 |
| 29 to 35 | 10 | 9.3 |
| 36 to 45 | 29 | 27.1 |
| 46 or older | 8 | 7.5 |

Frequency Missing = 2

36. Gender

| Q36 | Frequency | Percent |
|---|---|---|
| Male | 56 | 51.9 |
| Female | 52 | 48.1 |

Frequency Missing = 1

# GRADUATE DATA PROFILE

# Natural Resources Graduates Survey

COLLEGE

| CC | Frequency | Percent |
|---|---|---|
| Central Oregon | 26 | 66.7 |
| Chemekata | 7 | 17.9 |
| Grays Harbor | 5 | 12.8 |
| Feather River | 1 | 2.6 |

1. What was your field of study?

| Q1 | Frequency | Percent |
|---|---|---|
| Wildlife | 1 | 2.6 |
| Forestry | 18 | 47.4 |
| Forestry-Option | 2 | 5.3 |
| Natural Resources | 1 | 2.6 |
| Fisheries | 3 | 7.9 |
| GIS | 13 | 34.2 |

Frequency Missing = 1

2. How long were you enrolled?

| Q2 | Frequency | Percent |
|---|---|---|
| Two Years | 19 | 48.7 |
| More then two less than three years | 12 | 30.8 |
| Three to four years | 7 | 17.9 |
| More than four less than five years | 1 | 2.6 |

3. What year did you graduate?

| Q3 | Frequency | Percent |
|---|---|---|
| 89 | 1 | 2.6 |
| 95 | 1 | 2.6 |
| 96 | 1 | 2.6 |
| 97 | 9 | 23.1 |
| 98 | 27 | 69.2 |

4. Indicate whether you took the following courses

a. Technical mathematics

| Q4A | Frequency | Percent |
|---|---|---|
| Yes took | 27 | 69.2 |
| No, did not | 12 | 30.8 |

b. Trigonometry

| Q4B | Frequency | Percent |
|---|---|---|
| Yes took | 23 | 59.0 |
| No, did not | 16 | 41.0 |

c. Geometry

| Q4C | Frequency | Percent |
|---|---|---|
| Yes took | 25 | 64.1 |
| No, did not | 14 | 35.9 |

d. Algebra(non-college level)

| Q4D | Frequency | Percent |
|---|---|---|
| Yes took | 26 | 66.7 |
| No, did not | 13 | 33.3 |

e. Algebra(college level)

| Q4E | Frequency | Percent |
|---|---|---|
| Yes took | 14 | 35.9 |
| No, did not | 25 | 64.1 |

f. Statistics

| Q4F | Frequency | Percent |
|---|---|---|
| Yes took | 14 | 35.9 |
| No, did not | 25 | 64.1 |

g. College level mathematics

| Q4G | Frequency | Percent |
|---|---|---|
| Yes took | 6 | 15.4 |
| No, did not | 33 | 84.6 |

h. General biology

| Q4H | Frequency | Percent |
|---|---|---|
| Yes took | 14 | 35.9 |
| No, did not | 25 | 64.1 |

i. Specialized biology or zoology

| Q4I | Frequency | Percent |
|---|---|---|
| Yes took | 13 | 33.3 |
| No, did not | 26 | 66.7 |

j. Chemistry

| Q4J | Frequency | Percent |
|---|---|---|
| Yes took | 9 | 23.1 |
| No, did not | 30 | 76.9 |

k. Geology

| Q4K | Frequency | Percent |
|---|---|---|
| Yes took | 10 | 25.6 |
| No, did not | 29 | 74.4 |

5. Did you take ecosystem science?

| Q5 | Frequency | Percent |
|---|---|---|
| Yes | 29 | 76.3 |
| No | 9 | 23.7 |

Frequency Missing = 1

6. Were concepts of ecosystem taught?

| Q6 | Frequency | Percent |
|---|---|---|
| Yes | 35 | 92.1 |
| No | 3 | 7.9 |

Frequency Missing = 1

7. Profs stress importance of principals

| Q7 | Frequency | Percent |
|---|---|---|
| Yes, most did | 23 | 62.2 |
| Yes, some did | 13 | 35.1 |
| No | 1 | 2.7 |

Frequency Missing = 2

8. Do you understand ecosystems?

| Q8 | Frequency | Percent |
|---|---|---|
| Yes | 35 | 94.6 |
| No | 2 | 5.4 |

Frequency Missing = 2

9. Did you take GIS?

| Q9 | Frequency | Percent |
|---|---|---|
| Yes | 23 | 60.5 |
| No | 15 | 39.5 |

Frequency Missing = 1

10. What concepts of GIS taught?

| Q10 | Frequency | Percent |
|---|---|---|
| Yes | 30 | 78.9 |
| No | 8 | 21.1 |

Frequency Missing = 1

11. Importance of technical courses

| Q11 | Frequency | Percent |
|---|---|---|
| The most important part of my education | 15 | 40.5 |
| Equally important with science, math,... | 18 | 48.6 |
| Less important than science, math,... | 4 | 10.8 |

Frequency Missing = 2

12. Completed tech courses w/o science..

| Q12 | Frequency | Percent |
|---|---|---|
| Yes | 12 | 31.6 |
| No | 26 | 68.4 |

Frequency Missing = 1

13. Emphasis of integrating areas of stud

| Q13 | Frequency | Percent |
|---|---|---|
| Too little emphasis | 5 | 13.2 |
| About the right amount | 33 | 86.8 |

Frequency Missing = 1

14. Teaching to solve complex problems

| Q14 | Frequency | Percent |
|---|---|---|
| Excellent | 22 | 57.9 |
| Good | 16 | 42.1 |

Frequency Missing = 1

15. Academic level of education

| Q15 | Frequency | Percent |
|---|---|---|
| Very difficult and required special effort | 5 | 13.5 |
| Challenging but within my abilities | 30 | 81.1 |
| Fairly easy and required limited effort | 2 | 5.4 |

Frequency Missing = 2

16. Overall results of education

| Q16 | Frequency | Percent |
|---|---|---|
| Taught me essential knowledge | 27 | 71.1 |
| Important knowledge but unimportant parts | 11 | 28.9 |

Frequency Missing = 1

17. Ability as a technician

| Q17 | Frequency | Percent |
|---|---|---|
| An excellent technician | 26 | 68.4 |
| An adequate technician | 12 | 31.6 |

Frequency Missing = 1

18. Availability of permanent jobs

| Q18 | Frequency | Percent |
|---|---|---|
| Non-existent or very limited | 5 | 13.5 |
| Can obtain permanent employment | 13 | 35.1 |
| Limited but in my area | 6 | 16.2 |
| Limited if willing to relocate | 12 | 32.4 |
| Can be found without much difficulty | 1 | 2.7 |

Frequency Missing = 2

19. Did you discuss job market?

| Q19 | Frequency | Percent |
|---|---|---|
| No | 7 | 18.4 |
| Yes | 31 | 81.6 |

Frequency Missing = 1

19a. Did you feel advisors were honest?

| Q19A | Frequency | Percent |
|---|---|---|
| Yes | 25 | 83.3 |
| No | 5 | 16.7 |

Frequency Missing = 9

20. Assistance in seeking employment

| Q20 | Frequency | Percent |
|---|---|---|
| No | 17 | 43.6 |
| Yes | 22 | 56.4 |

20a. Rate assistance seeking employment

| Q20A | Frequency | Percent |
|---|---|---|
| Very helpful | 13 | 59.1 |
| Helpful but of limited assistance | 9 | 40.9 |

Frequency Missing = 17

21. Employment situation

| Q21 | Frequency | Percent |
|---|---|---|
| Employed | 26 | 66.7 |
| Unemployed | 13 | 33.3 |

21a. Interest in employment

| Q21A | Frequency | Percent |
|---|---|---|
| Not seeking employment | 11 | 84.6 |
| Seeking employment in my field | 2 | 15.4 |

Frequency Missing = 26

21b. Would you relocate?

| Q21B | Frequency | Percent |
|---|---|---|
| Yes but only near my home | 4 | 30.8 |
| Yes in most any location | 8 | 61.5 |
| No would not relocate | 1 | 7.7 |

Frequency Missing = 26

22. Describe employment

| Q22 | Frequency | Percent |
|---|---|---|
| Employed full time/permanent in my field | 9 | 34.6 |
| Employed full time/temporary in my field | 6 | 23.1 |
| Employed part time in my field | 7 | 26.9 |
| Employed full or part time not in my field | 4 | 15.4 |

Frequency Missing = 13

22a. Seeking a full time position?

| Q22A | Frequency | Percent |
|---|---|---|
| No | 3 | 17.6 |
| Yes | 14 | 82.4 |

Frequency Missing = 22

22b. Would you relocate?

| Q22B | Frequency | Percent |
|---|---|---|
| Yes, but only near my home | 7 | 41.2 |
| Yes, to a job in most any location | 3 | 17.6 |
| No, would not relocate | 7 | 41.2 |

Frequency Missing = 22

23. Organization where you are employed

| Q23 | Frequency | Percent |
|---|---|---|
| Private company | 5 | 22.7 |
| Self employed | 3 | 13.6 |
| Federal agency | 9 | 40.9 |
| State agency | 2 | 9.1 |
| local agency | 3 | 13.6 |

Frequency Missing = 17

24. Importance of learning mathematics

| Q24 | Frequency | Percent |
|---|---|---|
| Very important | 18 | 81.8 |
| Somewhat important | 3 | 13.6 |
| No particular importance | 1 | 4.5 |

Frequency Missing = 17

25. Indicate if each area of mathematics is useful

a. Basic arithmetic

| Q25A | Frequency | Percent |
|---|---|---|
| Very | 18 | 81.8 |
| Somewhat | 4 | 18.2 |

Frequency Missing = 17

b. Trigonometry

| Q25B | Frequency | Percent |
|---|---|---|
| Very | 11 | 50.0 |
| Somewhat | 7 | 31.8 |
| Not used | 4 | 18.2 |

Frequency Missing = 17

c. Geometry

| Q25C | Frequency | Percent |
|---|---|---|
| Very | 10 | 45.5 |
| Somewhat | 9 | 40.9 |
| Not used | 3 | 13.6 |

Frequency Missing = 17

d. Algebra

| Q25D | Frequency | Percent |
|---|---|---|
| Very | 8 | 36.4 |
| Somewhat | 10 | 45.5 |
| Not used | 4 | 18.2 |

Frequency Missing = 17

e. Statistics

| Q25E | Frequency | Percent |
|---|---|---|
| Very | 11 | 50.0 |
| Somewhat | 8 | 36.4 |
| Not used | 3 | 13.6 |

Frequency Missing = 17

26. Importance of learning science

| Q26 | Frequency | Percent |
|---|---|---|
| Very important | 13 | 59.1 |
| Somewhat important | 6 | 27.3 |
| Limited importance | 2 | 9.1 |
| No particular importance | 1 | 4.5 |

Frequency Missing = 17

27. Importance of learning ecosystem

| Q27 | Frequency | Percent |
|---|---|---|
| Very important | 14 | 63.6 |
| Somewhat important | 4 | 18.2 |
| Limited importance | 3 | 13.6 |
| No particular importance | 1 | 4.5 |

Frequency Missing = 17

28. Understanding ecosystem valuable

| Q28 | Frequency | Percent |
|---|---|---|
| Yes | 18 | 81.8 |
| No | 4 | 18.2 |

Frequency Missing = 17

29. Commitment by employer to ecosystem

| Q29 | Frequency | Percent |
|---|---|---|
| Very committed | 13 | 61.9 |
| Somewhat committed | 6 | 28.6 |
| Not very committed | 2 | 9.5 |

Frequency Missing = 18

30. Importance of technical courses

| Q30 | Frequency | Percent |
|---|---|---|
| The most important part of my education | 8 | 36.4 |
| Equally important with science, math,... | 10 | 45.5 |
| Less important than science, math,... | 2 | 9.1 |
| Less important than proper attitude | 2 | 9.1 |

Frequency Missing = 17

31. Ability to apply knowledge from cour

| Q31 | Frequency | Percent |
|---|---|---|
| Excellent | 12 | 54.5 |
| Adequate | 10 | 45.5 |

Frequency Missing = 17

32. Level of education

| Q32 | Frequency | Percent |
|---|---|---|
| High school graduate or GED | 21 | 53.8 |
| Less than two years or college | 8 | 20.5 |
| More than two years but did not graduate | 2 | 5.1 |
| Associate degree | 2 | 5.1 |
| Bachelor degree | 5 | 12.8 |
| Other | 1 | 2.6 |

33. Interest in bachelors degree

| Q33 | Frequency | Percent |
|---|---|---|
| No plans to enroll in bachelor program | 14 | 35.9 |
| Plan to enroll my natural resource area | 12 | 30.8 |
| Plan to enroll in another area | 5 | 12.8 |
| Enrolled in bachelor program in another field | 3 | 7.7 |
| Enrolled in bachelor program in natural resources | 5 | 12.8 |

33a. Are you enrolled?

| Q33A | Frequency | Percent |
|---|---|---|
| Full time | 13 | 52.0 |
| Part time | 12 | 48.0 |

Frequency Missing = 14

33b. How much credits did you transfer?

| Q33B | Frequency | Percent |
|---|---|---|
| Almost all | 6 | 24.0 |
| Half to 75% | 5 | 20.0 |
| Less than half but more than 25% | 9 | 36.0 |
| About 25% or less | 4 | 16.0 |
| None | 1 | 4.0 |

Frequency Missing = 14

33c. Advisor honest about transfer credi

| Q33C | Frequency | Percent |
|---|---|---|
| Yes | 15 | 60.0 |
| No | 2 | 8.0 |
| I dont know | 8 | 32.0 |

Frequency Missing = 14

34. Plan to take professional dev. cours

| Q34 | Frequency | Percent |
|---|---|---|
| Yes | 17 | 43.6 |
| No | 16 | 41.0 |
| Not sure | 6 | 15.4 |

35. Age category

| Q35 | Frequency | Percent |
|---|---|---|
| 22 or younger | 6 | 15.4 |
| 23 to 28 | 13 | 33.3 |
| 29 to 35 | 10 | 25.6 |
| 36 to 45 | 3 | 7.7 |
| 46 or older | 7 | 17.9 |

36. Gender

| Q36 | Frequency | Percent |
|---|---|---|
| Male | 18 | 46.2 |
| Female | 21 | 53.8 |

# EMPLOYER DATA PROFILE

## Natrual Resource Employee Survey

COLLEGE

| CC | Frequency | Percent |
|---|---|---|
| Central Oregon | 21 | 39.6 |
| Chemekata | 11 | 20.8 |
| Grays Harbor | 17 | 32.1 |
| Feather River | 4 | 7.5 |

1. Which describes your organization?

| Q1 | Frequency | Percent |
|---|---|---|
| Private company | 9 | 17.3 |
| Federal agency | 12 | 23.1 |
| State agency | 27 | 51.9 |
| local agency | 4 | 7.7 |

Frequency Missing = 1

2. What position was individual employed

| Q2 | Frequency | Percent |
|---|---|---|
| An intern or co-op student | 21 | 42.0 |
| Full time in permanent job | 6 | 12.0 |
| Full time in a temporary job | 21 | 42.0 |
| Part time | 2 | 4.0 |

Frequency Missing = 3

3. Which resource area perform duties?

| Q3 | Frequency | Percent |
|---|---|---|
| Wildlife | 6 | 11.8 |
| Forestry | 11 | 21.6 |
| General Natural Resources | 6 | 11.8 |
| GIS | 12 | 23.5 |
| Other | 16 | 31.4 |

Frequency Missing = 2

4. Indicate if it is important to have knowledge of each level of mathematics

a. Arithmetic

| Q4A | Frequency | Percent |
|---|---|---|
| Important | 48 | 90.6 |
| Unimportant | 5 | 9.4 |

b. Trigonometry

| Q4B | Frequency | Percent |
|---|---|---|
| Important | 21 | 39.6 |
| Unimportant | 32 | 60.4 |

c. Geometry

| Q4C | Frequency | Percent |
|---|---|---|
| Important | 34 | 64.2 |
| Unimportant | 19 | 35.8 |

d. Algebra

| Q4D | Frequency | Percent |
|---|---|---|
| Important | 37 | 69.8 |
| Unimportant | 16 | 30.2 |

e. Statistics

| Q4E | Frequency | Percent |
|---|---|---|
| Important | 29 | 54.7 |
| Unimportant | 24 | 45.3 |

f. Higher level mathematics

| Q4F | Frequency | Percent |
|---|---|---|
| Important | 4 | 8.7 |
| Unimportant | 42 | 91.3 |

Frequency Missing = 7

5. Indicate importance of each skill

a. Ability to apply principals of scienc

| Q5A | Frequency | Percent |
|---|---|---|
| Very | 20 | 37.7 |
| Somewhat | 28 | 52.8 |
| Little | 4 | 7.5 |
| Not at all | 1 | 1.9 |

b. Ability to apply principals of GIS

| Q5B | Frequency | Percent |
|---|---|---|
| Very | 15 | 28.8 |
| Somewhat | 19 | 36.5 |
| Little | 6 | 11.5 |
| Not at all | 12 | 23.1 |

Frequency Missing = 1

c. Ability to apply ecosystem concepts

| Q5C | Frequency | Percent |
|---|---|---|
| Very | 19 | 35.8 |
| Somewhat | 18 | 34.0 |
| Little | 12 | 22.6 |
| Not at all | 4 | 7.5 |

d. Ability to communicate effectively

| Q5D | Frequency | Percent |
|---|---|---|
| Very | 48 | 92.3 |
| Somewhat | 4 | 7.7 |

Frequency Missing = 1

e. Knowledge of technical applications

| Q5E | Frequency | Percent |
|---|---|---|
| Very | 32 | 60.4 |
| Somewhat | 19 | 35.8 |
| Little | 2 | 3.8 |

f. Effectiveness in solving problems

| Q5F | Frequency | Percent |
|---|---|---|
| Very | 22 | 42.3 |
| Somewhat | 28 | 53.8 |
| Little | 1 | 1.9 |
| Not at all | 1 | 1.9 |

Frequency Missing = 1

6. Rate importance of employee knowledge

| Q6 | Frequency | Percent |
|---|---|---|
| The most important part of my job | 12 | 23.1 |
| Equally important with science, math,... | 26 | 50.0 |
| Less important than science, math,... | 6 | 11.5 |
| Less important than proper attitude | 8 | 15.4 |

Frequency Missing = 1

7. Indicate expectation of overall knowledge and skills

a. Technical knowledge and skills

| Q7A | Frequency | Percent |
|---|---|---|
| Far exceeded | 9 | 17.0 |
| Usually exceeded | 14 | 26.4 |
| Met all | 16 | 30.2 |
| Met most | 13 | 24.5 |
| Fell below | 1 | 1.9 |

b. Mathematical knowledge and skills

| Q7B | Frequency | Percent |
|---|---|---|
| Not important | 7 | 13.5 |
| Far exceeded | 7 | 13.5 |
| Usually exceeded | 10 | 19.2 |
| Met all | 19 | 36.5 |
| Met most | 9 | 17.3 |

Frequency Missing = 1

c. Science knowledge and skills

| Q7C | Frequency | Percent |
|---|---|---|
| Not important | 3 | 5.8 |
| Far exceeded | 7 | 13.5 |
| Usually exceeded | 15 | 28.8 |
| Met all | 13 | 25.0 |
| Met most | 14 | 26.9 |

Frequency Missing = 1

d. GIS knowledge and skills

| Q7D | Frequency | Percent |
|---|---|---|
| Not important | 18 | 35.3 |
| Far exceeded | 5 | 9.8 |
| Usually exceeded | 9 | 17.6 |
| Met all | 9 | 17.6 |
| Met most | 9 | 17.6 |
| Fell below | 1 | 2.0 |

Frequency Missing = 2

e. Communication knowledge and skills

| Q7E | Frequency | Percent |
|---|---|---|
| Far exceeded | 14 | 26.4 |
| Usually exceeded | 19 | 35.8 |
| Met all | 13 | 24.5 |
| Met most | 6 | 11.3 |
| Fell below | 1 | 1.9 |

f. Ability to analyze and solve job

| Q7F | Frequency | Percent |
|---|---|---|
| Far exceeded | 12 | 23.1 |
| Usually exceeded | 20 | 38.5 |
| Met all | 11 | 21.2 |
| Met most | 9 | 17.3 |

Frequency Missing = 1

8. Which describes education received

| Q8 | Frequency | Percent |
|---|---|---|
| Excellent in providing knowledge | 9 | 17.3 |
| More than adequate in providing knowledge | 20 | 38.5 |
| Adequate for most knowledge | 22 | 42.3 |
| Less than adequate for knowledge | 1 | 1.9 |

Frequency Missing = 1

9. How likely would hire other graduates

| Q9 | Frequency | Percent |
|---|---|---|
| Very likely | 43 | 82.7 |
| Somewhat likely | 9 | 17.3 |

Frequency Missing = 1

# STUDENT SURVEY FORM

1. What is your natural resource program major field of study? *(Circle one number)*

01 WILDLIFE
02 FORESTRY
03 FORESTRY-TRANSFER OPTION
04 WATER RESOURCES
05 NATURAL RESOURCES
06 AGRICULTURE
07 EQUINE
08 HORTICULTURE
09 FISHERIES
10 GIS

2. How long have you been enrolled in your natural resource program? *(Circle one number)*

1 LESS THAN ONE YEAR
2 MORE THAN ONE BUT LESS THAN TWO YEARS
3 TWO TO THREE YEARS
4 MORE THAN THREE BUT LESS THAN FOUR YEARS
5 FOUR YEARS OR MORE

***The next section asks about your experience in the natural resource program.***

3. Please indicate whether or not you took (or are taking) each of the following mathematics courses? *(Circle one number for each)*

| | YES | NO |
|---|---|---|
| a. Technical mathematics | 1 | 2 |
| b. Trigonometry (even if included as part of another course) | 1 | 2 |
| c. Geometry (even if included as part of another course) | 1 | 2 |
| d. Algebra (non-college transfer level) | 1 | 2 |
| e. Algebra (college transfer level) | 1 | 2 |
| f. Statistics | 1 | 2 |
| g. College transfer level mathematics (pre-calculus, analytical algebra calculus, etc.) | 1 | 2 |

(PLEASE GO ON TO THE NEXT PAGE)

4. How often have you used mathematics required by your program to solve problems or perform applications in your technical courses? *(Circle one number)*

1 NEVER ***(Skip to Question 5)***
2 OFTEN
3 OCCASIONALLY

→ 4a. Indicate if each area of mathematics listed below was very useful, somewhat useful, or not used by you in your technical course work. *(Circle one number for each)*

| | VERY | SOME-WHAT | NOT USED |
|---|---|---|---|
| a. Basic arithmetic | 1 | 2 | 3 |
| b. Trigonometry | 1 | 2 | 3 |
| c. Geometry | 1 | 2 | 3 |
| d. Algebra | 1 | 2 | 3 |
| e. Statistics | 1 | 2 | 3 |

5. In your opinion, was learning how to do the mathematics important or not important in understanding how to apply the principals to technical applications or problems? *(Circle one number)*

1 IMPORTANT
2 NOT IMPORTANT

6. Did your professors stress the use of mathematics as an important tool in the technical duties in your specific natural resource area? *(Circle one number)*

1 YES, MOST DID
2 YES, SOME DID
3 NO

***The next sections is about the specific science courses you took (or are taking). Do not include "technical science" courses such as water analysis, fish culture, soils, etc. normally taught by your technical professors.***

7. Have you taken any specific science courses yet? *(Circle one number)*

1 NO ***(Skip now to Question 8)***
2 YES ***(Go on to Question 7a, 7b and 7c)***

7a. Please indicate whether or not you took (or are taking) each of the following science courses. *(Circle one number for each)*

| | YES | NO |
|---|---|---|
| a. General biology | 1 | 2 |
| b. Specialized biology or zoology | 1 | 2 |
| c. Chemistry | 1 | 2 |
| d. Geology | 1 | 2 |
| e. Other (Specify_____) | 1 | 2 |

7b. Which one of the instructional methods below was used for most of your science courses. *(Circle one number)*

1 ONLY LECTURE
2 LECTURE AND LABS IN A COLLEGE INSIDE LAB
3 LECTURE AND LABS CONDUCTED IN THE FIELD (even if part of the work was done using an inside lab to analyze samples or data)
4 LECTURE, SCIENCE LABS AND FIELD LABS

7c. How often did you use the required science or the techniques learned in "doing science" to solve problems or perform applications in your technical courses? *(Circle one number)*

1 OFTEN
2 OCCASIONALLY

8. In your opinion is learning how to "do science" important or unimportant in understanding how to apply the principals to technical applications and problems? *(Circle one number)*

1 IMPORTANT
2 UNIMPORTANT

9. Did your professors stress the use of science as an important tool in the technical duties in your specific natural resource area? *(Circle one number)*

1 YES, MOST DID
2 YES, SOME DID
3 NO

**(PLEASE GO ON TO THE NEXT PAGE)**

***The next section asks about the concepts of ecosystem science and management of natural resources which were taught in courses you took or are taking.***

10. Have you taken a specific course(s) in ecosystem science or management as part of your program? *(Circle one number)*

    1 YES
    2 NO

11. Were concepts of ecosystem science and management taught as part of your technical courses? *(Circle one number)*

    1 YES
    2 NO

12. Did your professors stress the importance of understanding principles of ecosystem science and management as a tool in sustaining the natural environment and the specific resources associated with your natural resource area? *(Circle one number)*

    1 YES, MOST DID
    2 YES, SOME DID
    3 NO

13. As a result of your studies, do you feel you understand what ecosystems are and how they relate to preserving our natural resources? *(Circle one number)*

    1 YES
    2 NO

***Please answer the following questions based on the knowledge gained from your program relating to ecosystem science and management.***

14. Which of the following phrases best describes your understanding of "ecological succession"? *(Circle one number)*

    1 THE PROCESS OF PLANT AND ANIMAL COMMUNITY CHANGE THROUGH TIME
    2 THE PROCESS OF ENERGY FLOW THROUGH ECOSYSTEMS
    3 THE INTERRELATIONSHIPS THAT EXIST BETWEEN LIVING AND NON-LIVING COMPONENTS OF ECOSYSTEMS
    4 THE ABUNDANCE OF PLANT AND ANIMAL COMMUNITIES AT A PARTICULAR LOCATION

- (PLEASE TURN THE PAGE)

15. The term "food web" is used to describe which of the following? *(Circle one number)*

1 THE PRODUCTION AND ACCUMULATION OF CARBOHYDRATES BY PHOTOSYNTHETIC ORGANISMS
2 ENERGY FLOW THROUGH AN ECOSYSTEM
3 CHANGES IN PLANT AND ANIMAL COMMUNITIES THROUGH TIME
4 POPULATION GROWTH IN AN ECOSYSTEM

16. Choose the word that best fills in the blank in this statement: "The primary difference between a 'community' and an 'ecosystem' is that _____ is (are) considered to be part of ecosystems but not part of communities. *(Circle one number)*

1 PLANTS
2 ANIMALS
3 BACTERIA
4 HUMANS
5 THE PHYSICAL ENVIRONMENT

17. Planting trees has been proposed as a potential solution to reversing the "greenhouse effect". This seems sensible since tress have the ability to: *(Circle one number)*

1 SHADE SOILS
2 CONVERT CARBON DIOXIDE INTO CARBOHYDRATES
3 STORE LARGE QUANTITIES OF WATER
4 PROVIDE WILDLIFE HABITAT
5 PRODUCE OXYGEN

18. In general, which on of the following characteristics or physical factors DECREASES as succession proceeds? *(Circle one number)*

1 SOIL DEPTH
2 HUMIDITY
3 ANIMAL DIVERSITY
4 SOIL TEMPERATURE

**(PLEASE GO ON TO THE NEXT PAGE)**

19. Ecosystem management (EM) has been proposed as a more appropriate way to manage our natural resources. Of the following items, which one is LEAST likely to be part of a forest management plan that uses EM as it guiding principle? *(Circle one number)*

1 MAINTAIN THE PROCESSES OF DECOMPOSITION AND NITROGEN FIXATION IN SOILS
2 INVOLVE SEVERAL ELEMENTS OF SOCIETY IN THE DECISION-MAKING PROCESS
3 USE MODERN IMAGING TECHNIQUES SUCH AS SATELLITE PHOTOS AND GIS
4 PLANT A MONOCULTURE OF DOUGLAS FIR
5 CONSIDER DOWNSTREAM EFFECTS OF MANAGEMENT ACTIVITIES

***The next section asks about the GIS course work you took (or are taking).***

20. Have you (or are you now) taking GIS course(s) as part of your program? *(Circle one number)*

1 NO ***(Skip to Question 21)***
2 YES

20a. How often did you use the GIS principles or data covered in your program's technical courses to solve problems or perform technical applications? *(Circle one number)*

1 OFTEN
2 OCCASIONALLY
3 NEVER

20b. Was learning about GIS important or unimportant to your understanding of how to perform technical applications and solve problems? *(Circle one number)*

1 IMPORTANT
2 UNIMPORTANT

20c. Did your professors stress the use of GIS as an important tool in the technical duties in your specific natural resource area? (Circle one number)

1 YES, MOST DID
2 YES, SOME DID
3 NO

**(PLEASE TURN THE PAGE)**

***Now we'd like to ask a few questions about your program sponsored or natural resource required work experience. Sponsored means the work experience is encouraged but not mandatory in your program. Work experiences can be either paid or unpaid.***

21. Have you taken (or are you now taking) part in an "on the job" education experience as part of your program? *(Circle one number)*

1 NO ***(Skip to Question 22)***
2 YES

21a. How important was your work experience to your educational program? *(Circle one number)*

1 VERY IMPORTANT
2 SOMEWHAT IMPORTANT BUT NOT ESSENTIAL
3 NOT IMPORTANT

21b. Did the work involve the technical skills taught in your program? *(Circle one number)*

1 YES
2 NO

21c. How often did (do) you use the skills gained in each of the following course work areas in your work experience? *(Circle one number for each)*

| | OFTEN | SOME-TIMES | NEVER | HAVEN'T TAKEN |
|---|---|---|---|---|
| a. Mathematics courses | 1 | 2 | 3 | 4 |
| b. Science courses | 1 | 2 | 3 | 4 |
| c. GIS courses | 1 | 2 | 3 | 4 |
| d. Communications (writing, speaking) | 1 | 2 | 3 | 4 |

***The next sections asks your overall impression of the natural resource program.***

22. Based on your experience in the program , which one of the following best describes your rating of the academic level of your education? *(Circle one number)*

1 VERY DIFFICULT ACADEMICALLY AND REQUIRED SPECIAL EFFORT
2 CHALLENGING ACADEMICALLY BUT WITHIN MY ABILITIES
3 FAIRLY EASY ACADEMICALLY AND REQUIRED ONLY MINIMAL EFFORT

**(PLEASE GO ON TO THE NEXT PAGE)**

23. Which one of the following best describes the overall results of the education you received? *(Circle one number)*

1 TAUGHT ME ESSENTIAL KNOWLEDGE AND SKILLS IN MY NATURAL RESOURCE AREA
2 GENERALLY TAUGHT IMPORTANT KNOWLEDGE AND SKILLS BUT HAD SOME UNIMPORTANT PARTS
3 TAUGHT ME SOME IMPORTANT KNOWLEDGE AND SKILLS BUT THERE WERE MANY PARTS NOT ESSENTIAL OR RELEVANT
4 OTHER (Specify_____)

***And a few questions on advising....***

24. Do you have an assigned advisor from the faculty? *(Circle one number)*

1 NO ***(Skip to Question 25)***
2 YES

24a. How often does your advisor meet with you to review your progress and discuss the program? *(Circle one number)*

1 AT LEAST ONCE A MONTH
2 ONE OR TWO TIMES A TERM
3 NEVER

24b. Has your advisor discussed the job market for persons in your specific natural resource area? *(Circle one number)*

1 YES
2 NO

25. Was the sequence in which you should take your courses clearly explained to you? *(Circle one number)*

1 YES
2 NO

26. Have you taken (are you taking) the courses in the recommended sequence? *(Circle one number)*

1 YES, MOST COURSES IN SEQUENCE
2 YES, SOME COURSES IN SEQUENCE
3 NO, NOT FOLLOWING THE SEQUENCE
4 I'M NOT SURE

**(PLEASE TURN THE PAGE)**

27. Counting the credits you are now taking, what is your class standing in the program? *(Circle one number)*

1 FRESHMAN (Less than 30 semester hours-or 45 quarter hours)
2 FIRST TERM SENIOR (31 to 45 semester hours-or 46 to 63 quarter hours)
3 SECOND TERM SENIOR (46 or more semester hours-or 64 or more quarter hours)

***Finally, a few questions about your background.***

28. What level of mathematics did you successfully complete in high school? *(Circle one number)*

1 ELEMENTARY ALGEBRA
2 INTERMEDIATE ALGEBRA
3 ADVANCED MATHEMATICS (Trig, pre-calculus, etc.)
4 OTHER (Specify_____)

29. Indicate whether or not you successfully completed the following science courses in high school. *(Circle one number for each)*

| | YES | NO |
|---|---|---|
| a. General science | 1 | 2 |
| b. Biology | 1 | 2 |
| c. Chemistry | 1 | 2 |
| d. Physics | 1 | 2 |
| e. Environmental science/natural resources | 1 | 2 |

30. What was your education level prior to starting your natural resource program at community college? *(Circle one number)*

1 HIGH SCHOOL GRADUATE OR GED
2 LESS THAN TWO YEARS OF COLLEGE
3 MORE THAN TWO YEARS OF COLLEGE BUT DID NOT GRADUATE
4 ASSOCIATE DEGREE
5 BACHELOR DEGREE
6 OTHER (Specify_____)

**(PLEASE GO ON TO THE NEXT PAGE)**

31. Did you take placement/admission tests prior to entering this college? *(Circle one number)*

1 NO ***(Skip to Question 32)***
2 YES

31a. Based on your test scores, did you have to take or were you advised to take each of the following to prepare for college level work. *(Circle one number for each)*

| | YES | NO |
|---|---|---|
| a. Special courses in mathematics..... | 1 | 2 |
| b. Special courses in English..... | 1 | 2 |
| c. Special courses in reading..... | 1 | 2 |

32. Which one of the following best describes your plans immediately upon graduation from community college? *(Circle one number)*

1 OBTAIN OR CONTINUE EMPLOYMENT IN MY FIELD OF STUDY
2 OBTAIN OR CONTINUE EMPLOYMENT NOT IN SOME OTHER AREA
3 CONTINUE MY EDUCATION

33. How likely is it that you will continue your education and obtain a bachelor's degree? *(Circle one number)*

1 VERY LIKELY
2 SOMEWHAT LIKELY
3 NOT TOO LIKELY
4 NOT AT ALL LIKELY

34. Which one of the following best describes your current employment status? *(Circle one number)*

1 NOT EMPLOYED FOR PAY
2 EMPLOYED PART-TIME IN AN AREA RELATED TO MY PROGRAM
3 EMPLOYED FULL-TIME IN AN AREA RELATED TO MY PROGRAM
4 EMPLOYED PART-TIME IN AN AREA NOT RELATED TO MY PROGRAM
5 EMPLOYED FULL-TIME IN AN AREA NOT RELATED TO MY PROGRAM

35. In which age category are you? *(Circle one number)*

1 22 OR YOUNGER
2 23 TO 28
3 29 TO 35
4 36 TO 45
5 46 OR OLDER

36. Are you:

1 MALE
2 FEMALE

37. Thank you for completing this survey. Is there anything else you would like to say about your natural resource program or your experience attending community college?

**(THANK YOU FOR YOUR COOPERATION)**

# GRADUATE SURVEY FORM

1. What was your natural resource program major field of study? *(Circle one number)*

01 WILDLIFE
02 FORESTRY
03 FORESTRY-TRANSFER OPTION
04 WATER RESOURCES
05 NATURAL RESOURCES
06 AGRICULTURE
07 EQUINE
08 HORTICULTURE
09 FISHERIES
10 GIS

2. How long were you enrolled in your natural resource program prior to graduating? Include any time taking "bridging or remedial" courses. *(Circle one number)*

1 TWO YEARS
2 MORE THAN TWO YEARS BUT LESS THAN THREE YEARS
3 THREE TO FOUR YEARS
4 MORE THAN FOUR YEARS BUT LESS THAN FIVE YEARS
5 FIVE YEARS OR MORE

3. In what year did you graduate from your natural resources program?

_____ YEAR GRADUATED

4. Please indicate whether or not you took each of the following courses to meet your graduation requirements. *(Circle one number for each)*

| | YES TOOK | NO, DID NOT |
|---|---|---|
| a. Technical mathematics | 1 | 2 |
| b. Trigonometry (even if included as part of another course) | 1 | 2 |
| c. Geometry (even if included as part of another course) | 1 | 2 |
| d. Algebra (non-college transfer level) | 1 | 2 |
| e. Algebra (college transfer level) | 1 | 2 |
| f. Statistics | 1 | 2 |
| g. College transfer level mathematics (pre-calculus, analytical algebra, calculus, etc.) | 1 | 2 |
| h. General biology | 1 | 2 |
| i. Specialized biology or zoology | 1 | 2 |
| j. Chemistry | 1 | 2 |
| k. Geology | 1 | 2 |

(PLEASE TURN THE PAGE)

5. Did you take specific course(s) in ecosystem science or management as part of your program? *(Circle one number)*

1 YES
2 NO

6. Were concepts of ecosystem science and management taught as part of your technical courses? *(Circle one number)*

1 YES
2 NO

7. Did your professors stress the importance of understanding principles of ecosystem science and management as a tool in sustaining the natural environment and the specific resources associated with your natural resource area? *(Circle one number)*

1 YES, MOST DID
2 YES, SOME DID
3 NO

8. As a result of your studies, do you feel you understand what ecosystems are and how they relate to preserving our natural resources? *(Circle one number)*

1 YES
2 NO

9. Did you take a specific course(s) in GIS as part of your program? *(Circle one number)*

1 YES
2 NO

10. Were concepts of GIS taught as part of your technical courses? *(Circle one number)*

1 YES
2 NO

**(PLEASE GO ON TO THE NEXT PAGE)**

***This next sections is about specific technical courses you took such as water analysis, fish culture, soils, etc. normally taught by your technical professors.***

11. Which one of the following best describes the importance of these technical courses to you in understanding various aspects of your natural resource area? *(Circle one number)*

    1 THE MOST IMPORTANT PART OF MY EDUCATION
    2 EQUALLY IMPORTANT WITH SCIENCE, MATHEMATICS AND COMMUNICATION SKILLS
    3 LESS IMPORTANT THAN UNDERSTANDING SCIENCE, MATHEMATICS AND COMMUNICATION SKILLS

12. In your opinion, do you think you could have adequately completed the technical courses in your field without the required science, mathematics and communications courses. *(Circle one number)*

    1 YES
    2 NO

13. In general, did your professors place too much, too little, or about the right degree of emphasis on the importance of integrating all your areas of technical study and critical reasoning skills when defining and solving problems in your natural resource field? *(Circle one number)*

    1 TOO MUCH EMPHASIS
    2 TOO LITTLE EMPHASIS
    3 ABOUT THE RIGHT AMOUNT

14. Would you rate the program's effectiveness in teaching you techniques and ways to identify and solve complex problems requiring critical reasoning and application of knowledge learned in your courses as excellent, good, fair or poor? *(Circle one number)*

    1 EXCELLENT
    2 GOOD
    3 FAIR
    4 POOR

15. Based on your experience in the program would you rate the academic level of your education as: *(Circle one number)*

    1 VERY DIFFICULT AND REQUIRED A SPECIAL EFFORT
    2 CHALLENGING ACADEMICALLY BUT WITHIN MY ABILITIES
    3 FAIRLY EASY ACADEMICALLY AND REQUIRED ONLY LIMITED EFFORT

**(PLEASE TURN THE PAGE)**

16. Which one of the following best describes the over all results of the education you received? *(Circle one number)*

1 TAUGHT ME ESSENTIAL KNOWLEDGE AND SKILLS IN MY FIELD
2 GENERALLY TAUGHT IMPORTANT KNOWLEDGE AND SKILL BUT HAD SOME UNIMPORTANT PARTS
3 TAUGHT ME SOME IMPORTANT KNOWLEDGE AND SKILLS BUT THERE WAS MUCH THAT WAS NOT ESSENTIAL
4 OTHER (Specify_____)

17. How would you describe your ability as a technician as a result of the education you received in your natural resources program? *(Circle one number)*

1 AN EXCELLENT TECHNICIAN FOR MY LEVEL OF EXPERIENCE
2 AN ADEQUATE TECHNICIAN FOR MY LEVEL OF EXPERIENCE
3 NOT AS GOOD AS I COULD BE IF THE PROGRAM HAD BEEN BETTER

***The next section asks about job availability, your current employment status and how your education relates to employment.***

18. Which one of the following best describes the availability of permanent jobs in your field of study? *(Circle one number)*

1 NON-EXISTENT OR VERY LIMITED
2 CAN OBTAIN PERMANENT EMPLOYMENT WILLING TO WORK INTO IT FROM A TEMPORARY/SEASONAL JOB
3 LIMITED BUT ARE AVAILABLE IN MY GEOGRAPHICAL AREA
4 LIMITED BUT ARE AVAILABLE IF WILLING TO RELOCATION
5 CAN BE FOUND WITHOUT MUCH DIFFICULTY

19. Did you discuss the job market in your field of study with advisors or other college personnel? *(Circle one number)*

1 NO
2 YES

→ 19a. Do you feel your advisors or other college personnel were honest in telling you about the job market in your field of study? *(Circle one number)*

1 YES
2 NO

**(PLEASE GO ON TO THE NEXT PAGE)**

20. Did you request or receive any assistance from college personnel in seeking employment? *(Circle one number)*

1 NO
2 YES

20a. Would you rate the assistance and help you received or are receiving from the college personnel in seeking employment in your field as very helpful, helpful but limited, of very little help, or of not help at all? *(Circle one number)*

1 VERY HELPFUL
2 HELPFUL BUT OF LIMITED ASSISTANCE
3 VERY LITTLE HELP
4 NO HELP AT ALL

21. Which one of the following best describes your employment situation? *(Circle one number)*

1 EMPLOYED ***(Skip to Question 22)***
2 NOT EMPLOYED

21a. Which one of the following best describes your interest in employment at this time? *(Circle one number)*

1 NOT SEEKING EMPLOYMENT AT THIS TIME
2 SEEKING EMPLOYMENT IN MY FIELD OF STUDY
3 SEEKING EMPLOYMENT IN MY FIELD OR IN OTHER AREAS

21b. Would you relocate to another area to take a full time permanent position in your field of study? *(Circle one number)*

1 YES, BUT ONLY IN SELECTED AREAS NEAR MY HOME
2 YES, TO A JOB IN MOST ANY LOCATION
3 NO, WOULD NOT RELOCATE

***(SINCE YOU ARE NOT CURRENTLY EMPLOYED PLEASE SKIP NOW TO QUESTION 32, PAGE 11 )***

**(PLEASE TURN THE PAGE)**

***The rest of this section is for those who are currently employed.***

22. Which one of the following best describes your employment? *(Circle one number)*

1 EMPLOYED FULL TIME IN A PERMANENT JOB IN MY FIELD OF STUDY ***(Skip to Question 23)***
2 EMPLOYED FULL TIME IN A TEMPORARY OR SEASONAL JOB IN MY FIELD
3 EMPLOYED PART TIME IN MY FIELD OF STUDY
4 EMPLOYED FULL OR PART TIME IN A JOB NOT IN MY FIELD OF STUDY

→ 22a. Are you seeking a full time permanent position in your field of study? *(Circle one number)*

1 NO
2 YES

22b. Would you relocate to another area to take a full time permanent position in your field of study? *(Circle one number)*

1 YES, BUT ONLY IN SELECTED AREAS NEAR MY HOME
2 YES, TO A JOB IN MOST ANY LOCATION
3 NO, WOULD NOT RELOCATE

***ANSWER THE NEXT SECTION ONLY IF YOUR EMPLOYMENT IS IN YOUR FIELD OF STUDY, IF NOT EMPLOYED IN YOUR FIELD PLEASE SKIP TO QUESTION 32, PAGE 11.***

23. Which one of the following best describes the organization where you are employed? *(Circle one number)*

1 PRIVATE COMPANY
2 SELF EMPLOYED OR A FAMILY BUSINESS
3 FEDERAL AGENCY (FOREST SERVICES, BLM, ETC.)
4 STATE AGENCY
5 LOCAL GOVERNMENTAL AGENCY (COUNTY, CITY)

**(PLEASE GO ON TO THE NEXT PAGE)**

***The next few questions ask you to rate elements of your natural resources program as they relate to you current employment in your field.***

24. Would you rate the importance of learning how to do *mathematics* as very important, somewhat important, of limited importance, or not particularly important in carrying out technical applications and solving problems in your job? *(Circle one number)*

    1 VERY IMPORTANT
    2 SOMEWHAT IMPORTANT
    3 LIMITED IMPORTANCE
    4 NO PARTICULAR IMPORTANCE

25. Indicate if each area of mathematics listed below is very useful, somewhat useful or not used by you in performing your job. *(Circle one number for each)*

| | VERY | SOME-WHAT | NOT USED |
|---|---|---|---|
| a. Basic arithmetic | 1 | 2 | 3 |
| b. Trigonometry | 1 | 2 | 3 |
| c. Geometry | 1 | 2 | 3 |
| d. Algebra | 1 | 2 | 3 |
| e. Statistics | 1 | 2 | 3 |

26. Would you rate the importance of learning how to do *science* as very important, somewhat important, of limited importance, or not particularly important in carrying out technical applications and solving problems in your job? *(Circle one number)*

    1 VERY IMPORTANT
    2 SOMEWHAT IMPORTANT
    3 LIMITED IMPORTANCE
    4 NO PARTICULAR IMPORTANCE

27. Would you rate the importance of learning ecosystem concepts and principals of management important, of limited importance, or not particularly important in knowing how to best approach the technical applications an and problems in your job? *(Circle one number)*

    1 VERY IMPORTANT
    2 SOMEWHAT IMPORTANT
    3 LIMITED IMPORTANCE
    4 NO PARTICULAR IMPORTANCE

**(PLEASE TURN THE PAGE)**

28. In your opinion, does your employer believe your understanding of the concepts of ecosystem management is valuable in understanding how job tasks are performed ? *(Circle one number)*

1 YES
2 NO

29. How would you rate the level of commitment by your employer to the principle of managing the ecosystem and our natural resources in a sustainable manner? *(Circle one number)*

1 VERY COMMITTED (Actively expresses support for the efforts and implement principles.)
2 SOMEWHAT COMMITTED (Supports the need for some compliance with principles and regulations)
3 NOT VERY COMMITTED (Complies only to meet imposed regulations)
4 NOT AT ALL COMMITTED (Actively expresses disagreement with regulations)

30. Thinking now about specific technical courses your took such as water analysis, fish culture, soils, etc., which one of the following best describes the importance of these technical courses to you in understanding how to best approach the applications and problems in your job? *(Circle one number)*

1 THE MOST IMPORTANT PART OF MY EDUCATION
2 EQUALLY IMPORTANT WITH SCIENCE, MATHEMATICS AND COMMUNICATION SKILLS
3 LESS IMPORTANT THAN UNDERSTANDING SCIENCE, MATHEMATICS AND COMMUNICATION SKILLS
4 LESS IMPORTANT THAN HAVING THE PROPER ATTITUDE TOWARD MY WORK

31. Would you rate your ability to apply the knowledge gained in your courses, and the critical reasoning skills you developed to solving problems and performing your job as excellent, adequate, limited or poor? *(Circle one number)*

1 EXCELLENT
2 ADEQUATE
3 LIMITED
4 POOR

(PLEASE GO ON TO THE NEXT PAGE)

***Finally, a few questions about your education history, continuing education and you.***

32. What was your level of education prior to starting your community college natural resources program? *(Circle one number)*

1 HIGH SCHOOL GRADUATE OR GED
2 LESS THAN TWO YEARS OF COLLEGE
3 MORE THAN TWO YEARS OF COLLEGE BUT DID NOT GRADUATE
4 ASSOCIATE DEGREE
5 BACHELOR DEGREE
6 OTHER (Specify_____)

33. Which one of the following best describes your interest in a bachelor's degree program? *(Circle one number)*

1 HAVE NO PLANS TO ENROLL IN BACHELOR'S PROGRAM ***(Skip to Question 34)***
2 PLAN TO ENROLL MY NATURAL RESOURCE AREA
3 PLAN TO ENROLL IN ANOTHER FIELD
4 CURRENTLY ENROLLED IN A BACHELORS PROGRAM IN ANOTHER FIELD
5 CURRENTLY ENROLLED IN A BACHELORS PROGRAM IN NATURAL RESOURCES

33a. Are you enrolled (or plan to enroll) as a full-time or part-time student? *(Circle one number)*

1 FULL TIME
2 PART TIME

33b. Considering only those courses taken to meet your graduation requirements, not to prepare you to transfer, how much of your community college credits did you (or will you be able to) transfer to your bachelor's degree program? *(Circle one number)*

1 ALMOST ALL (More than 75%)
2 HALF TO 75%
3 LESS THAN HALF BUT MORE THAN 25%
4 ABOUT 25% OR LESS
5 NONE

33c. Do you feel your advisors or other college personnel were honest in telling you about the transfer of credits in your field? *(Circle one number)*

1 YES
2 NO
3 I DON'T KNOW

**(PLEASE TURN THE PAGE)**

34. Do you plan to (or are you taking) any "professional development" courses or training related to you field of study? *(Circle one number)*

1 YES
2 NO
3 NOT SURE

35. In which age category are you?

1 22 OR YOUNGER
2 23 TO 28
3 29 TO 35
4 36 TO 45
5 46 OR OLDER

36. Are you:

1 MALE
2 FEMALE

37. Thank you for completing this survey. Is there anything else you would like to say about your natural resource program or your experience attending community college?

**(THANK YOU FOR YOUR COOPERATION)**

# EMPLOYER SURVEY FORM

# NATURAL RESOURCES EMPLOYEE SURVEY

1. Which best describes your organization? *(Circle one number)*

1 PRIVATE COMPANY
2 SELF EMPLOYED OR A FAMILY BUSINESS
3 FEDERAL AGENCY SUCH AS THE FOREST SERVICE, BLM ETC
4 STATE AGENCY
5 LOCAL GOVERNMENTAL AGENCY

***Please complete the rest of the questionnaire for the graduate/intern named on the identification form that was enclosed with this survey. The first section asks about knowledge and skills necessary to perform the job.***

2. In what type of position was this individual employed? *(Circle one number)*

1 AN INTERN OR CO-OP STUDENT
2 FULL TIME IN A PERMANENT JOB
3 FULL TIME IN A TEMPORARY OR SEASONAL JOB
4 PART TIME

3. In which primary natural resource area does (did) the employee perform his or her duties? *(Circle one number)*

1 WILDLIFE
2 FORESTRY
3 WATER RESOURCES
4 GENERAL NATURAL RESOURCES
5 GIS
6 OTHER (Specify_____)

4. Please indicate if it is important or unimportant for the employee to have knowledge of each level of mathematics listed below. *(Circle one number)*

| | IMPORTANT | UNIMPORTANT |
|---|---|---|
| a. Arithmetic | 1 | 2 |
| b. Trigonometry | 1 | 2 |
| c. Geometry | 1 | 2 |
| d. Algebra | 1 | 2 |
| e. Statistics | 1 | 2 |
| f. Higher level mathematics (Specify_____) | 1 | 2 |

(PLEASE TURN THE PAGE)

5. In the table below is a list of abilities, knowledge, or skills that may or may not be important for this job. Please indicate if each is very important, somewhat important , of little importance, or not at all important in performing the job held by this individual. *(Circle one number for each)*

| | VERY | SOME-WHAT | LITTLE | NOT AT ALL |
|---|---|---|---|---|
| a. Ability to apply the principles of science to technical applications and problem solving | 1 | 2 | 3 | 4 |
| b. Ability to apply the principles of GIS to technical applications and problem solving | 1 | 2 | 3 | 4 |
| c. Ability to apply ecosystem concepts and principles of ecosystem management when choosing the best approach to technical applications and problems | 1 | 2 | 3 | 4 |
| d. Ability to communicate effectively (write, speak and listen to and understand others) | 1 | 2 | 3 | 4 |
| e. Knowledge of "technical applications" | 1 | 2 | 3 | 4 |
| f. Effectiveness in identifying and solving complex problems requiring critical reasoning and application of knowledge | 1 | 2 | 3 | 4 |

6. Please rate the importance of the employee's knowledge of job related "technical applications" in relations to other skills and knowledge. *(Circle one number)*

1 THE MOST IMPORTANT PART OF THE JOB
2 EQUALLY IMPORTANT WITH UNDERSTANDING SCIENCE, MATHEMATICS AND COMMUNICATION SKILLS
3 LESS IMPORTANT THAN UNDERSTANDING SCIENCE, MATHEMATICS AND COMMUNICATION SKILLS
4 LESS IMPORTANT THAN HAVING THE PROPER ATTITUDE TOWARD WORK

***The last section asks for your overall impression of this employee's performance. Please base your answers on the expectations you would have of an employee who is a recent graduate of a community college OR if the individual was an intern or co-op student, rate the performance in relation to your expectations for that level of employee.***

**(PLEASE TO ON TO THE NEXT PAGE)**



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7. Please indicate if the employee's *overall knowledge, skills or abilities* far exceeded expectations, usually exceeded expectations, met all expectations, met most expectations, or fell below expectations for each in the following areas. *(Circle one number for each)*

| | FAR EXCEEDED | USUALLY EXCEEDED | MET ALL | MET MOST | FELL BELOW | NOT IMPORTANT |
|---|---|---|---|---|---|---|
| a. Technical knowledge and skills..... | 1 | 2 | 3 | 4 | 5 | 0 |
| b. Mathematical knowledge and skills.. | 1 | 2 | 3 | 4 | 5 | 0 |
| c. Science knowledge and skills..... | 1 | 2 | 3 | 4 | 5 | 0 |
| d. GIS knowledge and skills..... | 1 | 2 | 3 | 4 | 5 | 0 |
| e. Communication knowledge and skills. | 1 | 2 | 3 | 4 | 5 | 0 |
| f. Ability to analyze and solve job related problems..... | 1 | 2 | 3 | 4 | 5 | 0 |

8. Which one of the following best describes the education this individual has received. Please make your rating based the level of knowledge and skills needed to perform the job without consideration for personal attributes or attitude. *(Circle one number)*

1 EXCELLENT IN PROVIDING KNOWLEDGE AND SKILLS
2 MORE THAN ADEQUATE IN PROVIDING KNOWLEDGE AND SKILLS
3 ADEQUATE FOR MOST KNOWLEDGE AND SKILLS
4 LESS THAN ADEQUATE FOR KNOWLEDGE AND SKILLS
5 SIGNIFICANTLY DEFICIENT IN KNOWLEDGE AND SKILLS

9. Based on your experience with this employee or intern, and considering the knowledge and skills required by the job, how likely is it that you would hire other graduates or interns of the college's program? *(Circle one number)*

1 VERY LIKELY
2 SOMEWHAT LIKELY
3 NOT TOO LIKELY
4 NOT AT ALL LIKELY

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10. Is there anything else you would like to say about the employee's performance. qualifications or about the college's natural resource program?

**(THANK YOU FOR YOUR COOPERATION!)**

NORTHWEST CENTER FOR SUSTAINABLE RESOURCES

WESTERN CENTER FOR COMMUNITY COLLEGE DEVELOPMENT
SCHOOL OF EDUCATION
OREGON STATE UNIVERSITY
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